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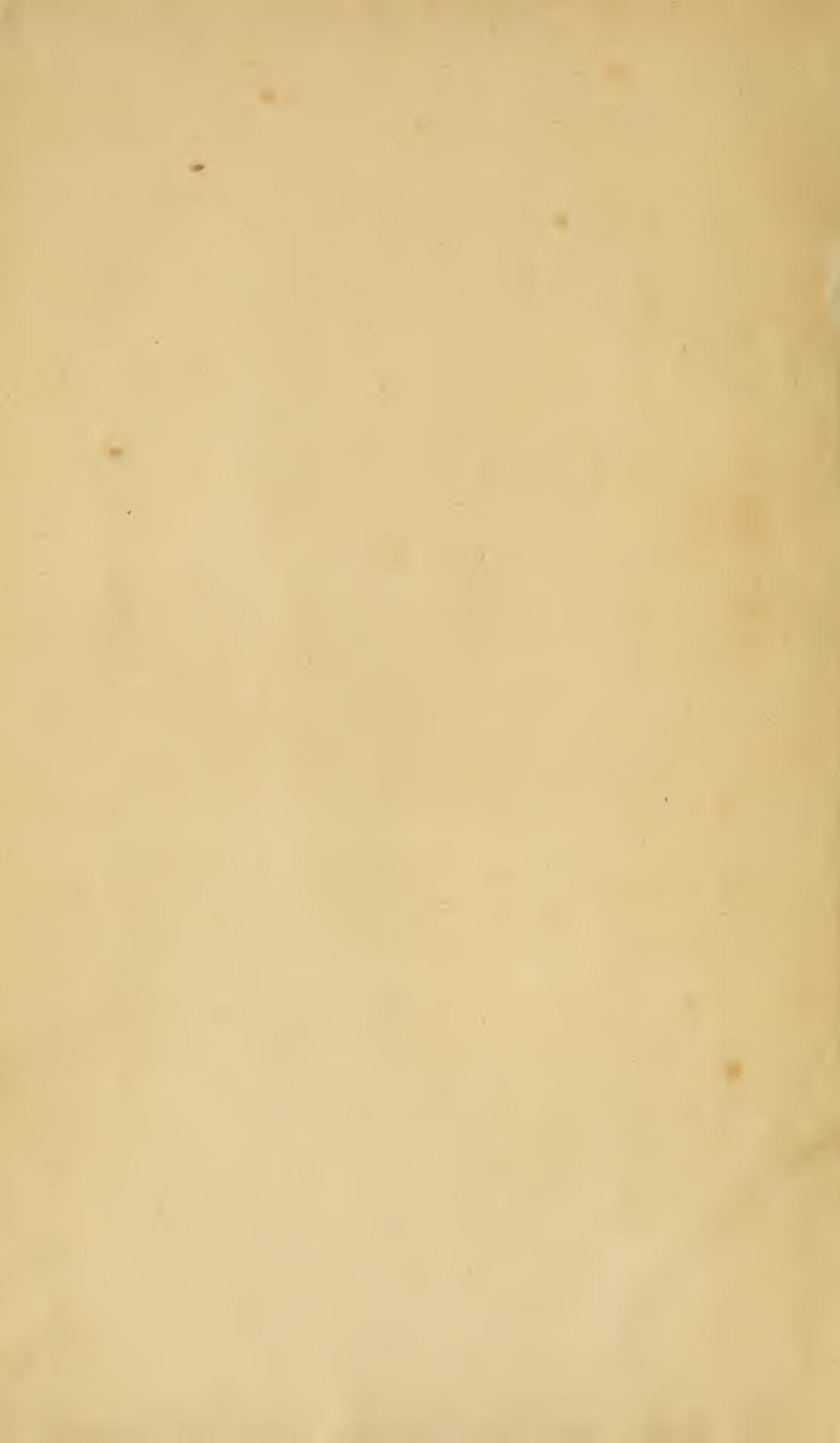
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OBSERVATIONS
ON THE
APPLICATION OF LUNAR CAUSTIC
TO
STRICTURES
IN THE
URETHRA AND OESOPHAGUS.

OBSERVATIONS

ON THE STRUCTURE OF THE SKIN

OF

STRUCTURE

OF THE

SKIN AND HAIR

**OBSERVATIONS
ON THE
APPLICATION OF LUNAR CAUSTIC
TO
STRICTURES
IN THE
URETHRA AND OESOPHAGUS.**



BY
M. W. ANDREWS, M. D.

MEMBER OF THE ROYAL COLLEGE OF SURGEONS,
LONDON;
LATE ARMY SURGEON, AND NOW PHYSICIAN
AT MADEIRA.

LONDON:
PRINTED FOR J. CALLOW,
CROWN COURT, PRINCES STREET, SOHO;
BY J. AND W. SMITH, KING STREET, SEVEN DIALS.

1807.

OBSERVATIONS

ON THE

MOTION OF THE MOON AND PLANETS,

OR

ASTRONOMICAL

TABLES FOR

THE YEARS 1777 AND 1778.

18

IN EIGHT PARTS.

ADMITTED TO THE USE OF THE ROYAL
ASTRONOMICAL SOCIETY, AND THE BRITISH
MUSEUM, FOR THE USE OF THE
LONDON OBSERVATORY.

LONDON:

PRINTED FOR S. CLOWES,

1776.

17081

TO

MATTHEW BAILLIE, M.D. F.R.S.

FELLOW OF THE ROYAL COLLEGE
OF PHYSICIANS,
AND LATE PHYSICIAN TO ST. GEORGE'S
HOSPITAL,

As a mark of high esteem and gratitude, the following pages are respectfully inscribed,

By his most faithful
Friend and Servant,

THE AUTHOR.

Madeira, 1st Jan. 1807.

28.1. THE SAILOR WHITING

LOST HIS TAKING OUT TO WOLVES

DEMONSTRATES TO

WITNESSES OF VIOLENCE THAT HE

IS A VICTIM

SHREWDLY HIGHLIGHTS THE

QUALITIES OF SO-CALLED "PROGRESSIVE" AND "LIBERAL"

INSTITUTIONS IN THIS COUNTRY

WHICH ARE NOT WHAT

THEY ARE MADE OUT TO BE

APRIL 20, 1901

FOR SALE BY MAIL

PREFACE.

IN considering the subject of the following pages, I have been naturally led to pay particular attention to the opinions of those authors, whose works are evidently intended to overthrow a practice, which has been brought to a considerable degree of perfection within these few last years, by the assiduity and application of one of our first Anatomical Surgeons.

I should not have felt myself justified in troubling the public with my remarks on this subject at present, had they not been warned against “the dreadful consequences of such ‘rash and inhuman treatment;’” but, as no such dreadful consequences have occurred in my practice, I conceive it is a duty which I

owe equally to the public and myself, to state the facts in my possession.

One author, in his advertisement, complains that Mr. Home has not attempted to refute any of the observations made upon his “practice in a former essay;”* It certainly could not have been expected that he would; nor indeed was it necessary, since the result of his practice was already in the hands of a candid public, who were sufficiently capable of appreciating its merits.

I do not propose to offer any thing new in these observations, but merely to notice some of the principal objections that have been made to the practice, and endeavour to produce additional proof in favour of it; in doing which I have given a detail of such cases as appeared to be particularly connected with the different parts of this essay. The cases at the end are less prolix, as the principal object in publishing

* Vide Whately’s Advertisement to his Treatise on this subject.

them was to throw together a greater mass of evidence in favour of the practice.

Another reason has also induced me to give more cases than what might be considered as absolutely necessary, viz. the insinuation "that "there is supposed to be a little *charlatanerie* "in the caustic, and that the caustic, on many "occasions, has had all the merit, when, in "fact, no caustic whatever has been em- "ployed."*

The success of the practice, and the advantages which the public have already derived from it, render such a subterfuge as unnecessary, as the insinuation is illiberal.

By some, who are acquainted with the opportunities which I had of gaining information on this subject, I may be considered as partial; in answer to which I can only say, that the circumstances connected with the different cases were marked down in my

* Vide Dr. Wm. Rowley on the Use of Astringent Injections, Caustic Applications, &c.

note book as they occurred, from which they are now detailed; and that I have experienced so few difficulties or failures altogether, is to be principally attributed to this simple fact, that the cases which I have hitherto had the charge of, have been with the exception of two or three, within the reach of the treatment, and the constitution of the patients so little impaired by excesses, that they were not rendered liable to such inconveniences as must necessarily occur in a more extensive practice. Something also may be attributed to the mildness of this climate, as it is natural to conclude, that extremes of heat or cold, must necessarily have a material influence on the constitution.

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INTRODUCTION

THE AUTHOR

John C. H. Studdert-Kennedy
1865-1937

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OBSERVATIONS,

&c.

CHAPTER I.

ON THE NATURE OF STRICTURES IN THE URETHRA.

STRICTURES in the urethra, although a subject nearly inexhaustible in itself, from the various effects which they produce on the constitution, have, until a very few years past, been but imperfectly understood, and little attended to by practitioners in general. They have indeed been nearly overlooked as the cause of many complaints; the old practitioners contenting themselves with the treatment of them only when their effects were local, never considering it either probable, or possible, for them to give rise to such various and complicated symptoms in the human constitution, as we now find them capable of doing.

B

Obstructions in the urethra have undoubtedly been known to practitioners for a considerable number of years, as appears from the writings of some of our oldest anatomists; but the nature of them was never so clearly understood as at present. We read of "Callosities," of "Caruncles," and of "Spongy Excrescences in the urethra," obstructing the passage of urine; and even some practitioners of reputation in the present age entertain similar ideas of the complaint.

The antients supposed that these callosities were generally of great extent, and were always willing to believe that they arose out of venereal affections. As, however, anatomy became more generally cultivated, and dissections encouraged, the healthy structure of every part of the human frame was more intimately known, and, in proportion to the advancement of anatomical knowledge, the morbid structures, as they appeared in the dead body, were more readily detected.

It was, however, left for the investigating genius of a Hunter, to discover the nature of these obstructions, and for his unbiassed and unprejudiced mind to point out a rational mode of removing a complaint which had, for

so long a time, produced such ravages on the human constitution.

Since his death, Mr. Home has prosecuted the enquiry still further, and the repeated opportunities, which he has had of examining the diseased appearances after death, have enabled him to confirm what Mr. Hunter had advanced, and to add much valuable information on the subject.

It is well known to anatomists that the urethra, although lined with a membrane in some respects similar to the membranous lining of other canals, is very different from any other canal in the human body.

The urethra is intended to perform a double office, each requiring a state peculiar to itself: the one is a state of relaxation, by which the bladder may be enabled to expel the urine more readily through it; at which time the diameter of the canal is rendered much wider than is necessary for it to be, when not engaged in that office; but, during the act of coition, it is necessarily elongated and lessened in its diameter, in order that the semen may be thrown forward with that force, which is requisite to complete the intentions of nature.

This power of contraction, and relaxation,

is evidently necessary for the performance of its natural and healthy functions,

It is, however, capable of being produced by the application of certain stimuli; and when this is too frequently repeated, the action is changed from a healthy to a diseased one, and then becomes spasmodic.

This is not the only inconvenience that arises from it, the oftener the diameter of the canal is narrowed by this contractile force, the more it loses its power of relaxing or returning to its original size; some of the circular fibres remaining permanently contracted, and thereby forming the disease in question.

The disposition to contract, or lessen the diameter of the canal, although it is to be met with throughout its whole length, is not equally great in every part, but is more so at two different situations, viz. immediately behind the bulb, and at four inches and a half from the external orifice, at which places it is naturally narrower than in any other part of the urethra.*

It may, however, happen in any part of the

* See the dimensions of the urethra, &c. as taken by Mr. Home.—Vol. I. 2d edit. p. 25 to 30.

canal, but almost always takes place first immediately behind the bulb, that portion of the urethra having a greater spasmodic action at the time of the venereal orgasm, to assist the acceleratores muscles in throwing forward the semen with a sufficient degree of projectile force.

There is another circumstance, which renders it more than probable that the original, or primary stricture takes place at this point, viz. that an obstruction is very rarely to be met with at any anterior part of the canal without there being one also in this situation; but, on the contrary, where there is only one stricture, it is generally found to be at about seven inches from the external orifice, making a proper allowance for the variety in the length of the urethra in different individuals.

A stricture, once formed, may continue for many years without the patient's having the smallest suspicion of its existence: this, however, will depend, in a great measure, upon the constitution, or the circumstance which gave rise to its formation.

CHAPTER II.

ON THE CAUSES OF STRICTURE.

HAVING said that a stricture in the urethra is first a spasmodic contraction of its circular fibres at some particular part of the canal, which, from frequently being brought into that state, at length become permanent, lessening its diameter at that point. The next circumstance to be considered is, the cause by which this effect is produced.

There appear to be two principal causes, by which this morbid structure may be brought on, viz. it may either be the immediate effects of inflammation, or of debility; the latter often the consequence of too frequent an indulgence in venery.

That the inflammatory stage of a virulent gonorrhœa is capable of producing strictures, is a point now well ascertained by practitioners, but that which I believe is still the more frequent cause of them is the very strong and astringent injections, that are too frequently

employed *for the speedy removal of the discharge*. I cannot help considering, however, that there is a material difference in the early stage of that, which arises from the inflammation of gonorrhœa, or too powerful injections, *and of that which is the consequence of debility*; but from whatever cause it arises, the morbid structure, once formed, is liable to be increased at that, or any future period; and, in either case, the same kind of treatment becomes equally necessary.

Although a virulent gonorrhœa, or its treatment, will very frequently be found to have been the cause of this complaint, yet it is not less certain that these affections are by no means essentially necessary for its production. Any stimulus, capable of inducing a spasmodic action in the urethra, is equal to the formation of it. A stone in the bladder, by its rendering that viscous incapable of containing the urine for any length of time, is frequently found to be the cause of it. Overstraining the parts by the too frequent repetition of the venereal act, at shorter intervals than nature can accommodate herself to: toying with women, and prolonging the act to an unnatural length, which is so often practised in

warm climates;* and, in some very irritable urethras, the application of a blister to a distant part of the body, has produced a strangury, laying the foundation of a future stricture.†

The following cases will be a sufficient elucidation of some of these facts.

CASE I.

In March, 1803, a labouring man in this Island brought his son to me, a lad about five and a half years of age. He had a discharge from the urethra, and difficulty attended with pain and frequent inclination to void his urine; it often came away by drops: I found, on passing a small bougie, that he had an obstruction at about two inches from the external orifice, to which I applied the lunar caustic on the point of a small bougie: after five applications, the unarmed bougie went readily into the bladder. The discharge subsided, the difficulty and pain in making water were no longer experienced, and he was able now to pass it in a stream.

* Vide Home. Vol. I. 2d edit. p. 36.

† Ibid. p. 44.

His complaint had always been considered and treated as arising from gravel. I have met with two other instances in children about seven years of age, and venereal gonorrhœa could (surely) have had no part in their production.

CASE II.

A gentleman, twenty-two years of age, consulted me in July, 1803, for symptoms, which he conceived to arise from strictures in the urethra, but which he could not readily reconcile to himself, as he had never received any venereal infection, and could not trace any circumstance to connect with the formation of them: but, wishing to have his mind relieved of an uncertainty, he begged me to examine the state of the canal.

On introducing a bougie, it passed to six inches, where it met with an obstruction, but gave considerable pain at four inches and a half, which continued while the bougie remained in the urethra;—this I considered to arise from the extreme irritability of the canal.

The fact being ascertained, the use of the caustic was determined on; and, on passing

the armed bougie (July 16th) I found that it would not go beyond four inches and a half; but, considering this arrest of the armed bougie as arising altogether from the irritability of his urethra at that part, I immediately withdrew it, and allowed two days to elapse, that the parts might recover themselves.

On the 19th, I again passed the white bougie with particular attention, and found that it met with a slight resistance at four inches and a half, but almost immediately went to six. This proved to be an incipient stricture, which was brought into such a state of contraction by the unarmed bougie passing through it, as readily admitted the application of caustic to its surface.—This circumstance also satisfactorily explained why so much pain was experienced on the first introduction of the bougie; and shewed also that, in this person, there was a peculiar disposition to contraction in the urethra, and that the application of very slight causes were equal to produce it.

By seventeen applications of the caustic, three strictures were destroyed, viz. one at four and a half by four; second, at six by two; and, third, at seven inches by eleven; an elastic gum catheter was then passed into the bladder.

The circumstances, which led to a suspicion of the complaint, were occasional pains about the bladder, a frequent inclination to make water, which was always increased by exercise, and a sense of pain in the urethra, after having had connection.

As, therefore, strictures may be formed in the urethra, by much slighter causes than gonorrhœas or injections, one would naturally be led to conclude, that such violent effects as arise from either, would, in every instance, produce them, and more particularly in such an irritable urethra as the subject of the present case had.

The contrary, however, of this, is the fact: Seven months after the strictures had been removed, he contracted a gonorrhœa, of which he was cured, but no symptom of stricture returned; and a bougie, a full size larger than what was formerly used, now passed with ease into the bladder. He has since been cured of another clap, but without any stricture being the consequence.

I have also met with another instance, equally strong, in support of this last fact. I was consulted by a Portuguese, for symptoms, which

he considered to arise from obstructions in the urethra; he had also a diseased testicle.

In the course of investigating his complaint, he informed me, that he had been infected with gonorrhœa at different times, for the removal of which he always used strong stimulating injections; and that, at one of the times, in particular, the inflammation and irritation were so great, as to occasion a partial suppression of urine. After this account, I certainly did expect to have met with a stricture; but, on the contrary, I found; that the largest sized bougie passed very readily into the bladder. The symptoms, which he had referred to strictures, must have depended altogether upon the diseased state of his testicle.

CASE III.

Toying with women, and prolonging the venereal act to an unnatural length, are among the causes of this complaint.

The following is a strong instance of this nature.

The Man's History of his Complaints from 1782 to 1805.

In February, 1782, being then only fifteen years of age, he was toying with a young

woman for several hours, but had no opportunity of bringing about the act, being surrounded by her family. In the course of the night (a few hours after) he experienced a considerable degree of shooting pain in the urethra, attended with difficulty in passing his urine; and, on the second day, a discharge appeared. The urine was turbid, depositing a quantity of mucus at the bottom of the vessel, in consistence and appearance like the white of an egg.—As it was evident, that these symptoms could not arise from any venereal infection, (he never having had any to this period) he was directed to keep his body open with infusion of senna, jalap, &c. to use the warm bath, and occasionally emollient glysters. With this treatment, the symptoms subsided in about three months.

In Sept. 1783, he was exposed to a similar disappointment, which produced the same effect in a few hours after; the mucus discharged with the urine was more in quantity than on the former occasion, and he had a painful chordee. The treatment adopted was the same as the last; and, in about five months, these symptoms also disappeared.

In October, 1785, he had a connection, but

not till he had been toying with the woman for a considerable time; the same symptoms, which he had before experienced, came on; and, by the like treatment, he again obtained relief, after having suffered very severely for nearly eighteen months.

From this period he was sensible that the stream of urine became less.

In May, 1791, he had a connection, which was brought about with the same difficulty as on the former occasion; and, in a few hours, the same train of symptoms appeared. In little more than one month they were much relieved, but were again brought back by a similar circumstance. At this period he embarked for Lisbon, and took no further steps to get rid of his troublesome symptoms. Soon after his arrival there, he had connection, in which act the discharge of semen did not appear to have taken place, but a considerable flow of blood came on, which continued some hours. After this the most distressing part of his former symptoms began to disappear.

In November, 1792, the discharge, &c. again came on four or five hours after a forced connection; the first few days he took laxative medicines; he shortly after embarked, and

paid no more attention to his complaint for near three months, at which time he had recourse again to laxative medicines, emollient glysters, and the warm bath, which jointly produced considerable relief; but the discharge continued, more or less, from that time, always increasing on the least excess.

In December, 1794, the discharge being very great, and the heat of urine at times considerable, he was directed, in addition to the former treatment, to use injections.

In January, 1800, a new symptom appeared, viz. a suppression of urine, which was relieved by the warm bath and aperient glysters, in about six hours. During the same year he had five returns of it; but each return was preceded by *a forced connection*.

In 1801, he stated his case to a surgeon at Lisbon, who, considering his symptoms to arise from strictures, introduced a small simple bougie, which, at first, would not pass beyond six inches; but after repeating this daily for about a week, he succeeded in passing it into the bladder; after which small bougies, armed with caustic at their points, were passed to destroy the stricture. Every time this operation was performed, he voided a considerable

quantity of blood; and, after having tried this treatment for some time, without experiencing relief, he discontinued it.

In 1802, the whole train of symptoms were brought on, from imprudently overstraining the parts by the too frequent repetition of the act in the course of a few hours.

The pain and difficulty in voiding his urine increased, the suppressions became frequent, and an almost continued inclination to make water, became very distressing, never being able to retain it longer than half an hour.

In March, 1805, he had a suppression of urine, which continued twenty-eight hours before it could be relieved. For several months he has had pain in both groins extending down the thighs, legs, &c. with swelling of the ankle joints; and, for these last sixteen years, he has always been subject to nocturnal seminal emissions during sleep, often twice or thrice during the night; he has noticed that, when he awoke before the emission had been complete, the discharge, heat and difficulty in voiding urine, were much aggravated. It is also to be remarked that, whenever the discharge, &c. appeared immediately after his having had connection, he had either been

toying with the woman some time before, so as to produce an erection, or had repeated the act too frequently, and at too short intervals; but, when the connection had been perfectly natural, no unpleasant circumstance arose.

In July, 1805, he applied to me, and on examining the urethra by a full sized bougie,* I met with a stricture at five inches and a half from the external orifice; to which I applied the caustic on the following day, (July 23;) two applications destroyed it, and a second was met with at six inches and a half: four applications to this allowed the bougie to pass on to a third, at full seven inches; this required forty-four applications before it was destroyed. After passing the caustic thirty times, I found, by the impression on the end of the soft bougie, that the under half of the stricture was destroyed, but that the upper part still remained; in order therefore that I might not make a breach through the sound membrane, I covered half the surface of the caustic with a thin coating of the composition of which the bougie was formed, in such a manner that

* The diameter of the bougie I introduced was $\frac{1}{4}$ of an inch; that used by the surgeon at Lisbon was $\frac{1}{2}$.

the caustic could only be applied to that part of the obstruction which remained, and, with this precaution, all accidents were avoided.

The pains in his groins, thighs, and legs, and the swelling of the ankle joints have long left him; and, as no medicine was employed for their removal, either internally or externally, they were evidently merely symptomatic. He has been, for several weeks, without any nocturnal emission, and the discharge from the urethra has also disappeared; he makes water in a full stream only about five or six times in the twenty-four hours; and, in every other respect, finds his health materially improved.

CHAPTER III.

ON THE SYMPTOMS OF STRICTURES.

THE symptoms of this complaint may be divided into two classes, viz. local, and constitutional.

The local symptoms are sometimes connected, at other times unconnected with the constitution; occasionally the constitutional symptoms become the first cause of the complaint's being detected.

The most common local symptom, and that which has led so many into an error respecting the complaint, is a discharge from the urethra, generally attended with a slight pain in voiding urine. This is an occasional, but not a necessary, symptom, yet so common a one, that we cannot be too particular in our inquiries when consulted on such occasions.

The discharge is not continual, but liable to returns under particular circumstances. The sudden application of cold, the use of acids, and too frequent indulgence with women, will induce a return of it.

When a return is brought on by this last cause, it is almost always considered as venereal, and treated accordingly: in the course of the treatment (if it be mild) the heat will soon disappear; what remains, being then considered as a gleet, is supposed to require stronger applications.

When the local applications employed are of a mild nature, and attention is paid to the state of the bowels, it very often happens that all the symptoms disappear in a short time, and considerable credit is then given for the speedy removal of a complaint which, in reality, never existed. It, however, more frequently happens that too strong an injection is employed, the intentions of the surgeon are then defeated, and the complaint itself considerably increased.

As it advances, the stream of urine is diminished, in proportion as the orifice of the stricture becomes more contracted. The inclination to void urine is more frequent, and the powers of the bladder in expelling it more unequal to the task, often requiring several minutes to evacuate a very small quantity of water. When there are more than one stricture, or the orifice of it is very much contracted, the urine fre-

quently passes off in a forked or twisted manner. The pain and difficulty of voiding it under these circumstances, are sometimes extremely distressing, not unfrequently producing a partial or even total suppression.

A very unpleasant and distressing symptom is nocturnal erections, accompanied with involuntary emissions during sleep.*

This symptom, having often been the ground of consultation, has too frequently been attributed to a particular fulness in the seminal vessels, and an exertion of nature to get rid of the superabundant fluid. When this idea of nocturnal emissions is entertained by the practitioner, and when the patient (as it often happens) has not indulged much with women, it too frequently leads to a line of treatment, which must necessarily increase the cause of it, and be productive of considerable evil to the constitution. The patient is considered as having led too abstemious a life, and is therefore recommended to extend his commerce with the sex, under the conviction that nature has pointed out this mode of relieving herself.

Impressed with the propriety of this doc-

* Vide Home, 2d edit. Vol. I. p. 219.

trine, the patient, anxious to assist nature in her operations, with a hope of getting perfectly free from these nocturnal discharges, and justly fearing that they are gradually undermining his constitution, most readily has recourse to the means pointed out, which, instead of giving him relief, increase the cause of his distress.

It is a fact long established, that all natural secretions are regulated, in quantity and time of duration, by the use to which they are intended to be applied; and that all glands are susceptible of certain stimuli, and their actions capable of being increased or diminished, in proportion to the quantum of stimulus applied.

An increased, or diminished action in any glandular structure, must necessarily produce a greater, or less quantity, of the fluid secreted by that particular part; this, however, is not the only effect; the constitution is involved in it, and, as all the secretions in the human body are intended for some specific purpose, when nature is not interrupted, the quantity of them, as well as the time of forming them, are regulated to the greatest nicety; but when once the glands have arrived at a state of perfection

sufficient to accomplish this duty, they are capable of being stimulated to an increased action, or the secretion kept up for a considerable time, by which a greater quantity of blood is separated from the circulating mass. Hence we find, that a woman is capable of giving suck to two or three children in succession with the same breast of milk. In this case, the only stimulus necessary (after the milk is once secreted) is the continued application of the infant to draw off the milk as it is formed, and as long as this is regularly attended to, so long will the secretion be kept up;—not, however, that the milk will continue equally good for an unlimited time, as nature has put a boundary to all her operations.

The cause of nocturnal emissions during sleep, is the irritation brought on by a stricture;—if therefore a person, under these circumstances, has recourse to women, with a view of relieving nature, it is very evident that he will produce a different effect; he will then be increasing the irritation on the stricture, and the recurrence of this distressing symptom will be rendered more frequent. Is this, however, were the only bad consequence

produced by the repetition of this discharge, it perhaps would not, on all occasions, be sufficient grounds for medical advice; but as this involuntary emission becomes more frequent, the secretion must necessarily keep pace with it, and a greater quantity of blood is then taken away from the system; for although these vessels are continually employed in separating a certain portion of the blood for the formation of this particular fluid, still, as nature intends that the application of it should be for the production and continuation of the species, and not merely for our sensual gratification, she has provided another set of vessels, which are continually taking up, and reconveying into the system, a certain part of it, thereby maintaining a just and perfect equilibrium.

It is therefore evident, that this involuntary discharge is produced by a morbid action of the parts, arising from some local defect, and not by a superabundance of the seminal fluid; hence, a different mode of conduct, than what has been noticed, must be adopted.

Frequent priapisms, and occasional chordees, are not uncommonly the only circumstances noticed by the patient.

These form the principal local symptoms. We now come to take notice of those, which may be considered as belonging to the constitution, and which, until very lately, were never considered to be at all depending on the state of the urinary canal.

The most common of those are agues, as well as affections of the stomach, which, as occurring more frequently in warm climates, have generally been referred to the effects of bile; but, in many instances, we have sufficient proof of their arising altogether from strictures.

I would not wish to be understood that all agues and stomach affections, to which people in warm climates are subject, must necessarily be symptoms depending on strictures in the urethra, or that the removal of the strictures will, in all such cases, prove a cure to the patient of those constitutional affections; certainly not; but, having seen many people labouring under the complaint, whose symptoms had been treated with medicines internally as constitutional, and, from the nature of those medicines, evidently as a distinct disease, and, after a considerable trial without effect, the whole of them disappearing on the removal of a stricture, which an accidental irritation

in the urethra had detected, I cannot but consider it essentially necessary, in such cases, to ascertain the state of that canal, and, if the discovery of a stricture should be the consequence of such investigation, to take up the local treatment of that complaint, in order to discover how far the other circumstances may be connected with it, or depend wholly upon the constitution.*

General pains in the limbs, particularly of the lower extremities, similar to rheumatism,

* We cannot have a stronger instance of the propriety of this mode of conducting a complicated case, than the one stated by Mr. Benjamin Bell, in a letter to Mr. Home, wherein he expresses his apprehensions, *in the strongest terms*, that the state of the patient's constitution would not admit the use of bougies, whether common, or armed with caustic, for a sufficient time to bring about the desired relief; as, in Mr. Bell's opinion, "nothing but a long and constant perseverance in the use of them could effect it."

The result of the case, however, proves to the contrary; for we find that, in the hands of Mr. Home, five applications of a full-sized armed bougie removed the stricture; and the dreadful constitutional symptoms, *which before had baffled the powers of medicine*, disappearing, after the urinary canal was restored to its natural state, is a sufficient proof of their having been purely symptomatic.—Vide Home, second volume, Introduction.

and affections of the head, arising from a deranged state of the stomach and intestines, are also frequently the consequences of this complaint.

CHAPTER IV.

ON THE TREATMENT OF STRICTURES IN
THE URETHRA.

THE first step necessary towards effecting a cure in any complaint, is to obtain as perfect a knowledge of it as is possible, together with its effects on the constitution; and, in proportion as our information on these heads is more or less accurate, so shall we be able to apply remedies for the removal of them with a greater or less degree of confidence.

As this complaint is local; no internal medicine, as far as my knowledge extends, has any power in the removal of it; but very often considerable advantages are to be derived from the use of opiates, the warm bath, and other sedative applications, by their allaying spasmodic irritations, and relieving some of the most distressing symptoms; beyond this their powers do not extend. To obtain a cure, therefore, we are naturally led to enquire, What local applications have been used, and what have been found most successful in the removal of it?

There are two modes of treating this complaint; the one may be considered as a temporary, or palliative cure, viz. the simple bougie, and the other as a permanent one, viz. the caustic, or armed bougie.

With respect to the first, much has been said; many kinds of medicated, flexible gum, and metallic bougies have, at different times, been invented; each of them have been strongly recommended to the public by their respective authors; the particular virtues of each carefully enumerated, and all of them said to do wonders, by inducing a suppuration of the diseased part, and thereby removing the complaint.

Experience has, however, shewn the inefficacy of these means in producing such a change; for no sooner is the use of the bougie discontinued, than the parts fall again into a state of contraction, which is almost always greater than the former.

In most cases, I believe, the formation of strictures is equal on all sides, or the orifice of it is nearly, if not quite, in the centre of the canal; at least this conclusion is by far the most favourable to the use of the common conical bougie; for, from its shape, the effect

which it produces must be by mechanical pressure, in the same way as you would remove the edges of any substance which is elastic farther distant from each other, by the application of a wedge: if, therefore, the orifice is not in the centre, the bougie cannot act equally on all parts of the stricture, and, consequently, that side which is narrowest will be dilated first, and the bougie, passing on to the next obstruction, will necessarily leave a certain portion of the membrane in a contracted state.*

If, however, the orifice be in the centre, which, generally speaking, I believe to be the case, the conical bougie, by being daily passed as far as the opening will admit, and suffered to remain in the urethra for one, two, or more hours at each time, and by gradually increasing the size of it, in many recent cases, may ultimately dilate the canal to nearly its original diameter; but the complaint must not, in all cases, be considered as removed, for the membrane, at that part of the urethra where

* Mr. Home met, in one case, three strictures, all of which were on the same side of the urethra, and were easily ascertained to be so by the impression made on the end of the soft bougie. Vide Home, 2d edit. Vol. I. p. 22.

the stricture was formed, being elongated in proportion to the state of contraction, and not being restored to its original healthy state, will be liable to fall into a contracted state again, upon the discontinuance of the bougie, and frequently without any apparent cause for it whatsoever.*

If we return to the bougie again, we shall, by perseverance in the use of it, often be able to dilate the canal to a certain degree; but, in every subsequent recurrence of the complaint, the contraction will be so much more increased, that we shall not be able to enlarge the orifice of the stricture as much as had been done on the former occasion. If the only inconvenience arising from this mode of treatment were the occasional return of the stricture, which, however, was always to be completely overcome by the same means, still that alone would have been a sufficient reason to have sought for

* Mr. Benjamin Bell, who is a great advocate for the common bougie, says, "I have known a person, who, after being completely cured of stricture for several years, has been suddenly seized with a very hazardous and painful return of it, in the course of an hour or two, after having been much exposed to a cold east wind," &c. &c — Vide Benjamin Bell, on Gonorrhœa, &c. 2d edit. Vol. I. p. 294.

a more effectual mode of obtaining relief; but, as the complaint was found to be liable to repeated returns, and, at each return, the strictured part was also ascertained to be in a more contracted state, it became a matter of serious consideration, whether the complaint did not admit a more complete and permanent relief, than any that had hitherto been experienced, without a person's being in an almost constant use of the bougie.

After having maturely considered this point, and having met with many cases of strictures, attended with very distressing symptoms, which would not yield to the use of the bougie, the late Mr. John Hunter suggested the application of caustic to them, with the hope, at least, of destroying so much as would enable him to prosecute and complete the cure, by the continuance of the common bougie, and in this he was by no means disappointed.

The merit of introducing this practice has been denied to Mr. Hunter, because it is said to have been adopted by some of his predecessors more than one hundred years before, and Wiseman is quoted as one of the instances.

That the idea of applying escharotics to destroy a stricture, which other means had proved

to be unequal to do, did occur to Mr. Hunter, without reference to any preceding practitioner, I can feel no difficulty in believing, as I trust it is by no means impossible for the same idea to occur to two or more persons, although they shall be so separated from each other, as to have no opportunity, or means, by which the idea can be communicated from one to the other; but that he took the whole merit of it upon himself is by no means true.—As, however, the fact should not rest altogether upon the *ipse dixit* of one individual, when denied by so many, I shall give the case in which Mr. Hunter was first led to apply the treatment, and his observations on it, in his own words.—

Mr. Hunter, after having mentioned in what cases a cure may be attempted by caustic, says, “About the year 1752, I attended a chimney “sweeper, labouring under a stricture; he was “the first I ever had under this disease.—Not “finding that I gained any advantage, after six “months trial with the bougie, I conceived “that I might be able to destroy the stricture “by escharotics*, and my first attempt was “with red precipitate. I applied to the end

* “Having lately looked over some authors on this disease, “I find that this is not a new idea.”

“ of a bougie some salve, and then dipped it
“ into red precipitate;—this bougie I passed
“ down to the stricture: but I found that it
“ brought on considerable inflammation all
“ along the inside of the passage, which I
“ attributed to the precipitate being rubbed off
“ in passing the bougie. Not finding, however,
“ that the patient made water any better, and
“ not as yet being able to pass a small bougie
“ through the stricture, I suspected that the
“ precipitate had not sufficient powers to de-
“ stroy it.—I therefore took a small piece of
“ lunar caustic, and fastened it on the end of
“ a wire] with sealing wax, and introduced it
“ through a canula to the stricture.—After
“ having done this three times, at two different
“ days interval, I found that the man voided his
“ urine much more freely; upon the application
“ of the caustic a fourth time, my canula
“ went through the stricture.* A bougie was
“ afterwards passed for some little time, till he
“ was perfectly well.”

* “ Wiseman had the same idea, but probably the clumsy
“ way in which he attempted to put it in execution, might
“ be the reason why he seems not to have pursued it.”—
Vide Hunter on the Venereal Disease, 2d Edit. pages
128 and 129, published in the year 1788.

We have here a declaration by Mr. Hunter, that the idea of escharotics, for the removal of strictures in the urethra, had been entertained by others, and that Wiseman had also mentioned *caustic*, and with it also a sufficient proof that Mr. Hunter not only read, but paid a proper respect to, the opinions of others, *and that he has not abused his readers by a contemptuous silence of their works.** Why, then, should any attempt to detract from his merit, by endeavouring to make it appear that he had borrowed the idea from others, and wished to pass it off as his own?

The reason is obvious, and requires no further comment.

Finding his success in this first trial more than equal to his expectations, he contrived different instruments, by which the caustic might be conveyed to strictures at the different parts of the urethra; and, after various trials,

* It is curious that this declaration of Mr. Hunter should have escaped notice; even Mr. Home does not seem to be aware of it, as he says, "This observation of Wiseman's
" Mr. Hunter was not acquainted with, as he would not
" have passed that author in silence, had he known that
" the idea of applying the caustic originated with him."—
Vide Home, 2d edit. Vol. I. p. 1.

he found that none answered the purpose so well as a bougie of a cylindrical shape; in the point of which a small piece of lunar caustic was inserted, taking care to leave a sufficient margin of the bougie, so as to defend the sides of the urethra from injury, by which the objections to the canula were completely obviated.

This mode of applying caustic to strictures in the urethra, we find was practised by him for several years, before his death, and has since been brought to a much greater state of perfection, by his brother-in-law, Mr. Home.*

Reasoning, *a priori*, upon the nature of this complaint, it is surely much more rational to expect that, if by the application of caustic, we can destroy that diseased portion of the canal, which is the cause of all, or any of the symptoms already described, we shall be more likely to succeed in producing permanent relief, than by simply dilating the parts by the use of the common bougie, whenever this can be effected, which, however, is not always in our power.

It undoubtedly required much courage to break the ice, and be the first bold practitioner

* Vide Home on the Urethra, 2d edit. Vol. I. p. 116.

who would venture on the use of such an active application to a part so sensible. Probably only a very bad case, in which other means had not only failed, but the patient's life had come into such a state of danger as might have eventually terminated in death, if a passage could not have been procured, first authorised the trial; be that as it may, the success attending it, and the small local inconvenience produced by it, was a sufficient encouragement to prosecute the enquiry.

CHAPTER V.

ON THE EFFECTS OF STRICTURES ON THE
URETHRA AND NEIGHBOURING PARTS.

BESIDES the symptoms already noticed, the effects of this complaint upon the urethra, and parts contiguous, are often attended with distressing and alarming consequences.

There are two effects which appear to be most common.

When a stricture has existed for a number of years, or when the symptoms of it, from being mistaken, have been aggravated by a wrong mode of treatment, and much inflammation has been brought on, either in the urethra, or about the neck of the bladder, it not unfrequently happens that the degree of irritability, which is the consequence of it, renders the canal liable to strong spasmodic actions from very slight causes.

It is evident, that the oftener the urethra, under such circumstances, is thrown into a spasmodic state, the greater will be the contraction at the strictured part.

It has been noticed, that a person, with stricture, has often a desire to make water at much shorter intervals than natural; and it not unfrequently happens, that the desire suddenly comes on at the time the stricture is most contracted; the efforts of the patient to relieve his bladder, at this time, instead of being successful, generally tend to increase the state of contraction, so that, in many cases, the urine is not allowed to pass at all.

The consequence of this is evident; the bladder continues distending as the secretion of urine is continually going on, and the increased efforts to void it, together with a considerable state of anxiety, which a person naturally labours under at this period, jointly tend to render the suppression more complete.

This state of the parts often admits of relief by simply quieting the mind of our patient,—but it too frequently happens, that a person, considering himself in great danger, cannot allow his mind to be composed and taken off from the cause of his distress. Something, therefore, must be done to empty the bladder, and, as it often is a matter of considerable importance, to do it as speedily as possible, from the habit which that viscus may probably have

long acquired of discharging its contents at short intervals, it is always proper to endeavour to introduce a small catheter as the most ready way of obtaining our end. Should the contraction be so great, or the spasm so violent, as not to allow it to pass with tolerable ease, no force should be employed, but the instrument must be withdrawn. It will then be proper to pass a fine bougie, made of cloth or catgut, so far as can be done without giving pain, and to secure it in that situation for some time: that, with an anodyne draught, or an opiate glyster, will often succeed in removing the spasm, and rendering the canal so tranquil, as either to admit the urine's being evacuated by the action of the bladder, on the bougie's being withdrawn, or to allow a catheter to be passed without much difficulty.

The warm bath, emptying the bowels by means of glysters, and, in some very full habits, where inflammation is to be apprehended, the loss of a little blood, will also be advisable.

It will, however, sometimes happen, that all these attempts will fail, but, I believe, not very often, if they are properly persevered in.

When, however, they do, other steps must be taken, as the danger from suppression, if not

relieved within a certain time, is very considerable: under these circumstances, it becomes an important question, which of the operations that have been recommended, ought to be preferred.

The object of all the operations is the same, to relieve the bladder by emptying it of its contents; but it does not appear to be equally indifferent which of them should be adopted. Some have recommended the high operation, or puncturing the bladder above the pubis, from the supposition that its prominence at that point would render it more easy to the operator. Others have preferred the perinæum; but both of these places are extremely objectionable. The situation best adapted for this operation is through the rectum; in this part the operator may make his puncture with as much certainty as if it was exposed to view, using the fore finger of the left hand for his conductor; the natural connection of the bladder with the rectum, by cellular membrane, and the prominence of it when distended with urine, leave no room for doubt to a person who has been accustomed to examinations *per anum*, and he can chuse the point, at which he would wish to make his puncture, with as

much certainty as if the operation was wholly directed by the eye.*

If the operation is thought to be absolutely necessary, in order to save the life of the patient, the time when it should be performed must necessarily depend entirely upon the judgment and experience of the practitioner; as it is one of those cases in which no rule can be laid down, that will not admit of considerable variation. In one person a suppression may continue for thirty hours, without producing any serious effects on the constitution; and in another eight or ten hours may place the patient in such a state of danger, that even the event of an operation may be very doubtful. If I might be allowed to give an opinion on this point, I would say, that all the usual means of obtaining relief in such cases should be steadily persevered in, without reference to time, until the pulse, or other symptoms, indicate that the constitution is affected, at which period the surgeon might not only con-

* Mr. Home has punctured the bladder through the rectum on several occasions, and the cure of the strictures by caustic has afterwards been completed. In one of the cases of this operation I assisted.—See cases of suppression requiring the operation, Home, Vol. II.

sider himself justifiable in puncturing the bladder, but even culpable, if he delayed it any longer, as the strength of the patient would soon become so far exhausted, and the symptoms of inflammation in the bladder proceed so rapidly, as to render the chances against, rather than in favour of, success from it.

This point, however, is so nice an one to decide upon, that a great latitude must necessarily be left to the practitioner.

I am naturally led to make these observations, from the result of the following case:

CASE I.

Suppression of Urine arising from Strictures in the Urethra.

On Tuesday, October 4, 1803, I was called to a gentleman, sixty-eight years of age, of an extremely irritable and anxious disposition. I saw him between nine and ten o'clock at night, and found that he had not passed any urine for sixteen hours; that he had a continued inclination, with great pain and straining, but was unable to void a single drop.

I learnt that his medical attendant had sent him some medicine in the morning, but, being

himself unwell, was unable to continue his attendance.

Upon examining the abdomen, I found that the bladder was very tense, much distended, and the integuments painful, when pressed upon, but his pulse by no means affected, nor did the irritation appear to be general.

I immediately gave him sixty drops of laudanum, and endeavoured to pass a small flexible gum catheter into the bladder, but found it was arrested at six inches, and would not go beyond that point, either with, or without the stilet.

After fomenting the abdomen and perinæum for about twenty minutes, I attempted to pass a small bougie, but could not get it beyond six inches, in which situation I secured it, and put him into the warm bath.—When he came out of the bath, he fell into a sound sleep for near an hour, perspired profusely, and, on awaking, found himself much easier.

The parts appearing now tolerably free from spasm, I withdrew the bougie, but, as no urine followed it, I made another unsuccessful attempt to introduce the catheter. Not wishing to irritate the parts any more at present, I ordered him an opiate glyster, put him into

the warm bath, and repeated my attempts to pass an instrument into the bladder, with as little success as before, for neither bougie, or catheter would go beyond six inches.

At two o'clock in the morning, October 5, finding my attempts fail, the bladder being considerably fuller, the fundus reaching nearly as high as the navel, the external parts extremely painful, and upwards of twenty hours having elapsed since he passed any urine, I considered it full time that some more effectual steps should be taken to procure him relief, and therefore proposed the operation of puncturing the bladder through the rectum, as the most immediate and safe way of obtaining it. To this, however, the family positively objected; upon which, as I conceived his life to be in considerable danger, I begged that some further assistance might be called in.

The gentleman who was sent for, a Portuguese, not apprehending so much danger as I did, proposed that we should wait some hours longer, and see what a repetition of the bath, enemas, &c. would do, but was as much averse from any operation as the family.

As the advantages to be derived from a consultation must necessarily depend upon the

uniform and joint conduct of all parties, which, from circumstances, could not be the case in this instance; and as the gentleman did not propose any thing new, I thought that our patient would have a considerably better chance in the hands of one of us than with both; I therefore took my leave about four o'clock in the morning, previously informing him that there was a small plaster bougie secured in the urethra as far as the obstruction would allow it to pass.

At half past seven in the morning, I was again sent for, and requested to take charge of the case altogether. The uneasiness was now so much increased, that the family were anxious for such steps to be taken as were most likely to obtain relief; but at this time, not being willing to take the responsibility wholly on myself, an operation appearing almost inevitable, I desired that some one else might be called in; and Dr. Adams was sent for accordingly.

It was nine in the morning when we met at our patient's; and, as twenty-seven hours had now elapsed since any urine had been voided, it was agreed that another attempt should be made to introduce the catheter, and, in the

event of not being successful, to puncture the bladder through the rectum, as I had formerly proposed.

On examining the abdomen, &c. which was exquisitely painful, to our mutual surprize we found the bougie in the same situation in which I had left it, and, on enquiry, learnt, that it had never been removed; so that, whatever means the surgeon had employed to give his patient relief during my absence, he had not taken any steps by which the bladder could have been emptied.

This omission was, however, attended with some advantage, as it allowed the parts to become tranquil, and, in a certain degree, contributed to take off the spasm; so that, on passing a small flexible gum catheter, with a wire stilet considerably curved, it went with great ease into the bladder, and full two quarts of urine were evacuated.

The catheter was now secured in its situation, with directions to empty the bladder once in three hours, which was about the distance of time he had been accustomed to make water previously to this attack. Some gently laxative medicine was given; he passed

the remainder of the day and following night in tolerable ease.

Thursday, 6th. I removed the catheter about twelve, and left it out during the day; but as the bladder had not recovered its power of acting, I again introduced it at seven in the evening: one pint of urine was drawn off, and the instrument secured in the bladder as before.

Friday, 7th. He slept well. At eight in the morning, having emptied the bladder, I withdrew the catheter, and, as it passed with such ease on the preceding evening, I proposed to draw off the urine four times in the day, and to leave the instrument in the bladder during the night, until it should have recovered its tone. At noon I made an unsuccessful attempt to pass it; but not wishing to irritate the parts, I gave him an opiate, ordered the abdomen and perinæum to be fomented, and at four in the afternoon the instrument passed with perfect ease.

Saturday, 8th. He slept well; I did not withdraw the instrument.

Sunday, 9th. At noon, not having emptied the bladder since nine in the morning, and feeling an inclination to do it, the catheter

was withdrawn, and he was directed to make a slight effort, but was unable to void a drop. The abdomen and perinæum were fomented for some time, but the spasm would not allow the catheter to pass. Fomentations were continued—an opiate was given—he was put into the warm bath—many unsuccessful attempts were made during the day, and it was not till nine at night that I succeeded, when the instrument passed as freely, as if there had not been any obstruction. Two pints of urine were evacuated, and the catheter secured as usual.

Monday 10th. From the commencement of this attack, it was intended to take up the treatment of the stricture by caustic, as soon as the bladder and neighbouring parts had sufficiently recovered their tone, to render the use of the catheter no longer necessary; or, at least, to wait till the disposition to spasm had so far subsided, as to have allowed the easy introduction of that instrument whenever it might be required. With this view, attention was paid to keep the bowels sufficiently open; and, in order to relieve the spasm, he took camphor, combined with small quantities of emetic tartar, three or four times through the day, and occasionally an opiate at night.

As, however, we had not yet appeared to have gained any ground in this point, it was now agreed to apply the caustic, and pass the catheter according to circumstances. At twelve, after having emptied the bladder, the catheter was withdrawn, and a bougie, armed with caustic, was applied to a stricture at five inches from the external orifice. At half past four in the afternoon, not having voided any urine, I introduced the catheter without the smallest difficulty, and left it in the bladder.

Tuesday, 11th. He slept well, and I did not remove the instrument.

Wednesday, 12th. He slept well; I withdrew the catheter at twelve, after having emptied the bladder, and applied the caustic; at six in the evening put him into the warm bath, and introduced the catheter.

Thursday, 13th. He passed a restless night—rather low—I gave him bark and wine—and did not remove the instrument.

Friday, 14th. He slept well—I emptied his bladder at seven in the morning—withdrawn the catheter, applied the caustic, and immediately replaced the instrument with great ease.

Sunday, 16th. He slept but little the last two nights, in consequence of the soreness of

the canal, which was much increased by the catheter's being in ; I therefore withdrew it—applied the caustic, and proposed to pass it once in five hours.

At twelve and five it passed with great ease. By ten at night the spasm had returned, so that it would not go beyond six inches :— being subject to piles, which at this time were very troublesome, I gave him a laxative draught; and at six, on the following morning, Monday 17th, I put him into the warm bath; after which, I found no difficulty in passing the instrument. About three pints and a half were drawn off.

Tuesday, 18th. At seven in the morning, the caustic bougie was applied to a second stricture at six inches; at eleven, two, and four, I made several unsuccessful attempts to introduce the catheter; at eight in the evening it passed, and three pints were evacuated.

Thursday, 20th. I applied the caustic, and immediately replaced the instrument with ease. The use of the caustic was now regularly continued every second day, and no inconvenience arose in the introduction of the catheter till Wednesday the 26th. when we were fourteen hours before any thing could be got into the

bladder. Dr. Adams at length succeeded with a small silver catheter, and upwards of three pints were discharged. This was left in the bladder, chusing rather to trust to any inconvenience that might arise from a metallic instrument, than risk another attack of irritation; before the patient had recovered from the effects of this, notwithstanding it was in opposition to such great authority.*

The quantity of urine secreted by this patient was considerable, amounting to more than six pints in twenty-four hours.

Friday, 28th. I withdrew the instrument at eleven in the morning, and applied the caustic; during the day, several ineffectual attempts were made to pass the catheter, and about half past nine at night Dr. Adams was again successful in introducing it, but no urine came through it; some few drops, however, passing by the side of the instrument, gave us encouragement, and we were induced to leave it in, with the hopes it would act like a bougie. In this we were not disappointed; he passed a considerable quantity of urine by the side of it during the night:—at three on the following morning, Saturday 29th, I withdrew the in-

* Vide Benjamin Bell on Gonorrhœa, &c. Vol. I.

strument, in consequence of its producing much local uneasiness, and immediately he voided about two ounces.

The reason of the urine not passing through the catheter was now fully explained ; the small holes at the end of it were choaked up by a piece of slough, so that no fluid could enter.

From this period, he was able to void his urine without the aid of an instrument ; the first few days the inclination was frequent, about once in fifteen or twenty minutes.

Nov. 2d. The caustic was applied to a third stricture at full seven inches ; three applications only were necessary to destroy this.

Nov. 27th. He was daily gaining strength, had no difficulty in making water, which always came away in a good stream, and had not occasion to void it oftener than once in two or three hours.

He remained perfectly well, without the smallest inconvenience, until Tuesday, April 16th, 1805, when I was again called to him, in consequence of another suppression.

I at first apprehended that there had been a return of his strictures ; but, upon enquiry, found that this attack was to be referred to another cause.

It was noticed, in the former part of this case, that he had been subject to piles; and it appeared that he had had a severe attack of them for two or three weeks, which occasioned an irritation on the neck of the bladder, obliging him to make water once in two hours. On the preceding day, being in company, he had been imprudently inattentive to this circumstance; and, instead of two, had allowed seven hours to elapse without attempting to do it, although the inclination had come on at the usual period.

The consequence was, that when he tried he could not void any. I saw him at ten in the morning; he had not passed any urine for full sixteen hours—had a constant inclination, with great pain along the course of the urethra. The bladder was much distended, and the abdomen very painful to the touch; a large bunch of piles* was pressing upon the neck of the bladder, and could not be reduced in consequence of its distention. The first consideration was to give relief by emptying the bladder, which I endeavoured to do by means of a flexible gum catheter, with the stilet considerably

* That portion of them, that was without the anus, was full two inches and a half in diameter.

curved; but neither this, a small silver catheter, or a bougie, could be passed beyond seven inches.

Reflecting upon the former suppression, the number of hours that had elapsed on that occasion before relief could be obtained, and the little general inconvenience that the constitution suffered from it, I determined not to be too hasty, but to be guided wholly by existing circumstances. My first object now was to procure a stool, which was done by means of a laxative glyster. After its operation, I put him into the warm bath—gave him eighty drops of laudanum, and directed him to be kept perfectly quiet, and, on no account, to attempt to pass his water. He soon fell into a profound sleep, which continued for two hours, and perspired very profusely.

The bladder was now considerably fuller, appeared very prominent over the pubis, and extended as high up as in the former attack in 1803.

At two in the afternoon, I put him again into the warm bath; after which, the catheter was introduced, with very little difficulty, and thirty-three ounces of urine were evacuated, after a lapse of twenty-one hours. Immediate

relief was given, the piles disappeared, and I had the satisfaction to find, that the whole of this attack was brought on by them; for the catheter, which I now introduced, was full two sizes larger than the bougie which was passed after the removal of the stricture; a sufficient proof, that no return of stricture had taken place.

I secured the catheter, and gave directions for the urine to be evacuated once in two hours.

Wednesday, 17th. He passed a very comfortable night; emptied his bladder at the intervals above mentioned, and, at each time, he felt the inclination to do it.

Thursday, 18th. He slept well, and emptied his bladder as yesterday: at twelve I withdrew the instrument, to see if the bladder had sufficiently recovered itself, but was obliged to pass it again in the evening.

Friday, 19th. I did not remove it.

Monday, 22d. I withdrew the catheter early in the morning, and gave some laxative medicine, which operated very well; and, at each time, he voided a small quantity of urine without pain or straining; but, about three in the

afternoon, the spasm returned, and obliged me to pass the instrument in the evening.

Wednesday, 24th. As it was evident that the bladder had not recovered its tone, and was not likely to do it so long as the instrument was kept in, I proposed passing it three or four times through the day, and to secure it in during the night. This was done with some little variation in the periods, till Friday, May 3d; on which morning, about one o'clock, he had a very severe shivering fit, which did not altogether subside within the hour. It was accompanied with an acute pain in his head and loins, and succeeded by intense heat, a completely comatose state of the brain, and a total want of the action of the kidneys.

I saw him at four in the morning, and found him scarcely sensible; his pulse was very irregular, and, by what little information I could collect from him in that state, I was convinced that his principal pain was seated in the region of the kidneys. Not more than a large spoonful of urine had passed through the catheter, since the cold fit first came on.

My object was now to diminish the pressure on the brain, and to re-produce the action of the kidneys. To accomplish the first, I applied

a large blister between the shoulders, and encouraged a perspiration; and, with a view of stimulating the kidneys to action, I gave him large doses of camphor, combined with a small proportion of James's powder, every two hours. By ten in the morning, he had perspired very profusely; his head was much relieved; the stupor had subsided in a great degree, and he became perfectly sensible; but, as yet, the secretion of urine had not returned; I, however, kept the catheter in the bladder.

At four in the afternoon, although the comatose state had completely subsided, yet, as the kidneys had not resumed their functions, I still considered him in danger; and, as the family wished to have further advice, a consultation was fixed for eight in the evening; but I had the satisfaction to find, that the secretion of urine had returned before our first meeting, as he had voided nearly three ounces of urine through the catheter about an hour before, and the pains in his loins, &c. had also left him.

From this time, the catheter was introduced occasionally till the 9th; after which, it became unnecessary to have recourse to artificial means of emptying the bladder, as it had re-

eovered its tone sufficiently to perform its functions, and the quantity of urine secreted was now equal to what had been customary with him.

This case is a strong instance of the intimate connection between the state of the brain and these parts, and how much their actions depend on the operations of that organ.—I learnt from the family, that, on the day previous to the sudden stop of the secretion of urine, he had been engaged in a warm conversation with some person, during which he became so extremely irritable, as to lose all command of his temper; a sufficient cause for such a violent and sudden effect.

In this case we also find that, although a suppression of urine is sometimes the effect of strictures in the urethra, yet it does not follow that, in all cases of suppression, they must necessarily exist,* as, in the second attack, it was evident that there was no such cause for it; but the whole was brought on by imprudence on the part of the patient, in not attending to the calls of nature at such periods as

* An enlargement of the prostate gland will undoubtedly produce a suppression; in this case, however, the prostate gland was perfectly natural.

the bladder required, and had been accustomed to be relieved.

The following cases of suppression were milder, and more readily relieved.

CASE II.

Jan. 23d, 1803, I was called to a Portuguese, who had not been able to void any urine for several hours; he was in great pain, and had a continual inclination to make water. I introduced a very fine bougie, and allowed it to remain in the bladder for ten minutes; on withdrawing it, the urine flowed in a fine stream, and about one pint was voided. On examining the canal by a full sized bougie, a stricture was met with at six inches, to which the caustic was applied.—26th, the caustic was repeated.—28th, ditto.—31st, both bougies passed on to seven inches.—Feb. 3d, ditto.—5th, ditto.—7th, a large sized flexible gum catheter went with ease into the bladder.—Dec. 1805. He has had no return of the suppression, and has continued perfectly free from every inconvenience.

CASE III.

Dec. 14th, 1804. A. B. a mason, put himself under my care for the treatment of strictures. He was extremely timid, and, although he had long suffered from the complaint, was very unwilling to allow the caustic's being applied. He at length consented, and the first obstruction that was met with, was but half an inch from the external orifice; he only allowed two applications on this occasion, and did not return again until May 1805, at which time the bougies passed to three inches. After twice applying the caustic to this stricture, he took alarm, from being informed that such a violent application could not fail of producing irreparable injury to the parts;—he, therefore, preferred submitting to the effects of the complaint to prosecuting the cure by caustic.

On those days, in which he experienced less inconvenience, he was obliged to make water ten or twelve times, and six or eight times during the night; but, whenever he took more exercise than usual, he was obliged to make water three or four times in an hour.

Irritations of this kind were very frequent; the quantity of urine passed on these occasions

did not exceed an ounce; and, when he was able to retain his urine for the longest period, he never passed more than four ounces.

On Monday, August 19, 1805, while at work in the country, an attack of irritation came on, more severe than any of the former, obliging him to pass urine every five or ten minutes, attended with considerable pain and straining; this continued increasing, till he could only void it by drops, and by the following morning, Tuesday, he had a complete suppression. I saw him at one in the afternoon; at this time he could not pass a drop, had a continued inclination, with great pain, and had not voided any for nineteen hours. I gave him a full dose of laudanum, introduced a fine plaster bougie, and put him into the warm bath for fifteen minutes, after which, on removing the bougie, the spasm had so far subsided, as to allow the urine to pass in a tolerable stream; twenty-two ounces were evacuated; this gave immediate relief. I then introduced another bougie of the same kind, and secured it in the bladder for an hour, at which time he passed about eight ounces. After this, the spasm subsided altogether, and, by attending to the state of his bowels, the

urine passed, although in a fine stream, without the necessity of any instrument.

From his having experienced so much pain and uneasiness, as well as having been in some danger from the suppression, he resolved to return again to the use of the caustic.

On the 22d, I applied it to the stricture at three inches; a few applications allowed the bougies to be passed to four inches; but as he now began to make water more freely, and had still a strong impression on his mind of the great injury he was to sustain by the treatment, he again relaxed in his resolutions, and declined any further application.

In January, 1806, another suppression, which was relieved by the introduction of a small bougie and opiates, determined him to return once more to the use of the caustic, and to continue it regularly until the obstructions should be removed. On the 7th, I applied it to the stricture at four inches; 9th, ditto; 11th, ditto to five and a half inches; ten applications allowed the bougie to pass to full seven inches, and fifteen more overcame all our difficulties.

In these last cases the spasm was wholly confined to the urethra, and had not produced any effect on the functions of the bladder.

It sometimes happens, before relief is obtained in cases of suppression, that inflammation and ulceration take place in the urethra, between the bladder and strictured part, by which a breach is made through the urethra; and the urine, escaping into the connecting cellular membrane, mortification and sloughing of the integuments are the consequence, sometimes extending to the whole scrotum, laying bare the testicles and spermatic chord. From this dreadful situation people occasionally recover. It more frequently happens, however, that a simple abscess is formed by the inflammation, which, opening externally through the integuments, and communicating with the urethra, allows the urine to be evacuated through it: there may be one or more of these openings, which are called fistulæ in perinæo, and are strong proofs of the powers and activity of nature to relieve herself in cases of great difficulty.

Fistulæ in perinæo may be also formed by external violence, or be the consequence of inflammation from any other cause.

The situation of a person with fistula in perinæo is dreadful; but the alternative in cases of suppression, when relief cannot be procured, is death.

This alternative, perhaps, on many occasions might be preferable, if no means of cure were known; but that fortunately is not always the case. On many occasions, when the strictures, which occasioned this state of the parts, are removed, and the canal is restored to its original diameter, the fistulæ immediately heal up without any further trouble; and when they do not, it depends either upon their being of long standing, or produced by external injury: in either case the inflammation has consolidated the contiguous parts, and something like a membranous lining is formed, so that they are prevented from being totally obliterated; but as the urine finds a free outlet through its proper channel, the inconvenience, which is experienced by their remaining open, is much diminished.

Case of Fistulæ in Perinæo.

J. F. a Portuguese, fifty-five years of age, applied to me in consequence of strictures, accompanied with fistulæ in perinæo. He gave the following history of the origin and progress of his complaint.

In the year 1785, he contracted a venereal

gonorrhœa, which was treated by injection. The injection employed was so stimulating, as to produce considerable irritation in the urethra; a swelling appeared in perinæo; this suppurated and opened of itself; a second formed, which was opened by the lancet. Through both of these openings the urine occasionally passed, although in a small quantity; but the thickening of the parts, and the irritation were so great, that he felt great pain whenever he had occasion to empty his bladder, which he always was a considerable time in accomplishing. He was extremely costive, and very subject to piles. At this period, he had a small bougie passed once or twice to relieve spasm. In the course of three or four weeks, he had so much recovered, as to be able to walk about without much difficulty. From this period, his urine always passed in a fine stream, but generally without pain.

In 1796, he had an attack of irritation, which continued about ten days; during which period, he experienced considerable heat in voiding his urine, principally in the situation of the fistulæ; there was a slight swelling and inflammation of the external parts, which subsided by the application of warm fomentations,

and some laxative medicines; under the direction of a surgeon at Lisbon.

In 1799, another attack of irritation produced a third fistula; this attack was less violent than the former.

On Christmas-eve, 1800, he was attacked with a paroxysm, resembling a fit of ague, which was very severe. From this time he has been subject to returns of it, at the intervals of one or two weeks; bark, and a variety of internal medicines, have, at different times, been ordered by his physician, for the removal of it, considering it as an ague.

In 1803, the pain and inconvenience of the fistulæ became very distressing; a quantity of pus was continually discharging from them, and, whenever he made water, a considerable proportion of it passed through them.

The surgeon, to whom he then applied, directed the scrotum, &c. to be poulticed with bread and milk, and afterwards changed the application for aq. veget. mineral.

Saline medicines, and occasional laxatives draughts, were also given, but no attempt whatever was made to remove the strictures, which were evidently the cause of all the mischief, notwithstanding the pain and difficulty

in making water were, at this time, very great.

On the 3d July, 1804, he put himself under my care, at which time he was in a most deplorable and distressing state.

The prepuce was much swelled, and thickened to full three times the natural size; the scrotum much larger than a double fist; a considerable discharge of pus from the fistulæ, which were four in number; the urine passed through them in the proportion of two thirds; the inclination to void it came on generally five or six times in an hour; and what came through the urethra passed in a very small stream. The pain in the perinæum, when he walked, was excessive, and he could neither sit or stoop down without the greatest caution. The paroxysms before noticed were also become more frequent and much more violent.

On examining the state of the canal by a bougie, the diameter of which was one quarter of an inch, a stricture was met with at two inches from the external orifice, which gave way after two applications of the armed bougie; a second, at three inches and a half, was removed by three applications; a third, at five inches and a half, by five; a fourth, at six, by four; and the fifth, at full seven inches, by

ten applications; after which, the white bougie passed, with perfect ease, into the bladder.

From the time the second stricture was destroyed, he had not any return of his *supposed ague*; the thickening of the scrotum and prepuce gradually subsided, and became perfectly natural in size and appearance. The fistulæ completely healed, without any application to them: the pain and inconvenience, which he formerly experienced in walking or sitting down, entirely left him; the urine passes without pain, in a full stream, is soon discharged, and the inclination to void it not oftener than five or six times in the twenty-four hours.

April, 1806. He has not experienced the smallest inconvenience since the bougie first went into the bladder, which is now more than eighteen months; and, I understand from him, that he now has a perfect erection of the penis, which he had not experienced for a long time before the strictures were removed.

The local effects of strictures are not confined merely to the urethra and bladder, but also extend to the preputium, and often produce a partial, and sometimes complete, phymosis. When the phymosis is only partial, the treatment of the stricture may be taken up without

much inconvenience arising from the state of the prepuce; but, when it is complete, so that the external orifice of the urethra cannot be perfectly exposed, it is evident that nothing can be done for the removal of them, until the prepuce is brought to that state, which will allow its being drawn back at pleasure. In cases of Phymosis from gonorrhœa, it is accompanied with a considerable degree of inflammation, which yields to fomentations and emollient applications; this is not the case when the Phymosis is the consequence of strictures; no advantage, therefore, is to be expected from a similar treatment, and, consequently, recourse must be had to the knife to divide the prepuce. This operation will enable us to take up the treatment of the urethra.

I have met with three cases of this kind, evidently brought on by the irritation of strictures, as the patients never noticed any contraction of the prepuce till after they had been sensible of a diminution in their stream of urine, and some other symptoms of urethral obstructions.

One case of this kind appears sufficient to explain these circumstances.

In Sept. 1804, A. B. a Portuguese, applied

to me, in consequence of difficulty in passing his urine, accompanied with heat, a frequent inclination, and a discharge from the urethra. On examining the penis, I found the prepuce so completely contracted over the glans, that the external orifice of the urethra could not be exposed sufficiently to introduce a bougie; the integuments were also somewhat thickened. On enquiry, I found, that this contraction had been gradually coming on for several years, but not till after the symptoms of his stricture had made him perfectly sensible of some defect in the urethra. As he was anxious to get relief, he willingly submitted to any thing that should be thought proper to be done.

Sept. 16th, I passed a director under the prepuce, as far as the back part of the glans; on it introduced a curved bistoury, and divided the integuments completely. The lips of the wound were carefully kept from re-uniting.

By October 7th, the wound was completely healed, and the glans being now exposed at pleasure, a full sized bougie was passed, which met with a stricture at five inches, to which the caustic was applied; 9th, it was repeated; and, on the 11th, both bougies went to full

seven inches; ten applications allowed the bougie to be passed into the bladder. All his symptoms disappeared.

There is also another effect of this complaint; and which, although it does not put the life of the patient in danger, is often the cause of considerable uneasiness and disappointment to married men.

A stricture may be in such a state, as, when the urethra is relaxed, not to impede the flow of urine; but in the act of copulation, to be so much contracted, or produce so much spasm on the canal, as not to allow the semen to be thrown forward with that degree of force which is necessary to complete the intentions of nature. In some instances, this effect is sensibly noticed at the time, a portion of the semen remaining in the urethra, and coming out on the linen, when the penis is relaxed; on other occasions, the emission will appear to have been complete. The proof of the strictures having prevented the ejection of the semen with a sufficient force, can only be known after its removal, which, in many instances, has been sufficiently evinced.

CHAPTER VI.

ON THE OBJECTIONS THAT HAVE BEEN MADE TO THIS PRACTICE.

IT was reasonable to expect, that the application of caustic to such a tender and delicate membrane, would naturally have led practitioners to a fair and candid investigation of its merits, which could only have been done by a long trial, and repeated well-grounded observations ; the result of which would either have established, or expunged, the practice for ever. Such an investigation would have done honour to the profession at large, and to the individuals who might have been engaged in it. Little could it have been supposed, that men, high in the profession, of long and extensive practice, and whose situations gave them ample opportunities of attending particularly to this branch of practice, would have attempted at once to overthrow it, without attending to those circumstances, which alone could have established their doctrines. Surely this is a

mode of conduct unbecoming men of such a liberal profession, and has a tendency, not only to retard the advancement of knowledge, but also to lead the young practitioner into difficulties, by which his reputation will not be advanced, or his patient relieved.

After the publication of the first edition of Mr. Home's Treatise on this complaint, in 1795, practitioners indiscriminately took up the treatment by caustic; but, as it was natural to expect, it failed in the hands of a great number. The reason of this failure is obvious; they set out with the expectation of success in every instance, and, under every circumstance that presented itself, without reflecting how absolutely necessary a complete anatomical knowledge of the parts must be, to enable a practitioner to conduct the treatment of such cases.

Under these circumstances, it was natural to expect its failure in the hands of such practitioners, and the consequent disappointment to their exertions, would be a sufficient cause for them to form a strong opposition to it. It was immediately objected to the treatment as recommended by Mr. Home, that his statement was too favourable, giving no instance of such

difficulties as were daily occurring. To this Mr. H. has given a very proper answer in the preface of his second edition, where he also points out the necessity of an accurate anatomical knowledge to the practitioner, who undertakes this mode of treating the complaint; and, notwithstanding the great stress he lays on this point, he is accused of making too light of the effects, and of continuing his plan of forcing a passage with a large armed bougie into the bladder.

It is a very easy thing for an author, prejudiced against a particular practice, to state and enumerate such objections as, if true, would at once be sufficient to condemn it. The establishment of this point, however, requires something more than mere assertion.

If medical men are determined to condemn a mode of practice, because it does not prove successful in all cases, and under every circumstance, I believe that there will be very little chance of any kind of treatment being sanctioned by their approbation. But I apprehend, that a little reflection would convince them of the unfairness of this mode of reasoning.

Is there any serious complaint, to which human nature is liable, which can at all times be

subdued by the most judicious application of medicine? If not, why should so much stress be laid upon the want of success in some particular cases, in order to raise a doubt in the mind of patients, which, on all occasions, ought to be rather composed?

Let us now take a review of some of the principal objections that have been made, by which alone we shall be able to determine on the justness of them.

Mr. Benjamin Bell, in the year 1793, published a treatise on Gonorrhœa Virulenta, and Lues Venerea; in which he takes an opportunity of animadverting on the practice of applying caustic to strictures in the urethra, as recommended by Mr. Hunter. At this time, however, his objections were evidently not founded upon facts arising out of his own knowledge of the treatment. He has since revised and corrected this treatise in a second edition, which was published in 1797; and, as the opinion of such a writer as Mr. Bell, would naturally give a bias to the young practitioner, I have thought it right to select those passages, which are stated in the strongest language.

In vol. I. p. 306,* he says, "The introduction of caustic into the urethra must prove hazardous from two circumstances; our not being able, even with all the pains that we can take, to apply it to the stricture alone, without injuring the contiguous parts of the urethra; and the risk which there must always be of some small portion of the caustic breaking off and resting in the passage."

He then proceeds to describe the neat apparatus, &c. invented by Mr. Hunter; and, in p. 310, says, "But even admitting that caustic may with safety be conveyed to the stricture, if the disease does not yield to bougies, the obstruction will generally be found to be extensive, and the quantity of caustic necessary for removing it so great, that the contiguous sound parts of the passage would be much injured, whatever care and attention should be employed in the application of such an active remedy. On these accounts it would appear, that for the removal of strictures in the urethra, the application of caustic is either unnecessary, or in a very

* Vide Bell on Gonorrhœa, Vol. I. 2d. Edit.

" considerable degree unsafe, and, at the same time, of very uncertain effect."

P. 311. " I have no hesitation, therefore, in saying, that in similar affections of the urethra, proceeding to the extent which we here suppose them to have done, that caustic would either be altogether inadequate for the purpose, or that it must be applied in such quantities as to be productive of much hazard.

" In all such circumstances, it appears to me preferable to let the disease take its usual course. The worst that can probably happen, is the formation of sinuses behind the strictures, and the discharge of urine from the openings which these produce.— Few patients will long submit to this, if a remedy can be obtained ; but I consider the cure of this state of the disease, by the mode of treatment already pointed out,* as more certain, while it is obviously much less hazardous, than the means proposed for preventing it with caustic."†

* Page 304, speaking of the treatment of *fistulae* in *peri-næo*, he says, " In such circumstances, nothing will answer, if the diseased parts be not freely laid open."

† Sometime in the year 1805, I saw the following advertisement in a newspaper:

In the year 1800, Dr. William Rowley published a treatise, entitled, "Most cogent Reasons why astringent Injections, violent Salivations, and caustic Bougies, should be banished for ever from practice."

A book, with such a title page, and from a person, who, as he takes frequent occasion to remind the reader, has had forty years experience, must naturally be productive of much good, or the reverse. I shall only take notice of that part of his treatise here, which has a reference to the present subject.

It would be an endless undertaking to follow the Doctor through all the list of authors from whom he has given extracts to prove, that the application of escharotics, &c. has been known to practitioners for a considerable time; and that, as, from the manner they were formerly applied, they proved unsuccess-

"In the press, to be published early in the Spring—A Treatise on Strictures in the Urethra, in which a mild method of cure is recommended, in preference to the use of Caustic: being an attempt to shew the danger and various bad consequences of this severe and painful practice. By Benjamin Bell, F. R. S. Surgeon, Edinburgh." This promised publication has not yet made its appearance

ful, and even productive of mischief, in the hands of the ignorant and inexperienced, they should, in this more enlightened age, be dis- countenanced, and completely expunged, by *the humane part of the profession.*

It will be enough to select from the whole, those points on which he lays the principal stress, by which the impartial reader will be able to determine for himself.

Saviard's two cases are here brought forward by our author, with this observation—" That " great and excellent practitioner, chief sur- " geon to the Hotel Dieu at Paris, has deli- " vered two of the most horrid instances of " the destructive effects of *caustic bougies* ap- " plied to the urethra by daring ignorance, " that ever disgraced the art of Surgery.

" These cases, and other proofs of a similar " nature, deterred all learned, skilful, and " humane surgeons, from adopting this me- " thod for nearly a century.

" How it has happened, that the present " race of causticators were not apprized of " these facts, it is impossible to determine; " for, if they had, humanity would have saved " many victims, that are now daily sacrificed

" at the altars of daring and obstinate rashness."*

SAVIARD's CASES.

" May 24th, 1692. I was sent for to the
" suburbs of St. Anthony, to examine a per-
" son who had a retention of urine, occa-
" sioned by a wax-candle (bougie) being thrust
" into the penis, which he had purchased of an
" empiric, who boasted of his skill in curing
" carnosities.

" The bougie being armed with a strong
" caustic, had made a considerable eschar in the
" sphincter of the bladder, and much inflamed
" the canal of the urethra. A cystis was formed
" in the place of the eschar, wherein the urine
" fell, instead of passing by the natural chan-
" nel, to be discharged through the penis;
" however, I passed my catheter across the
" cystis, and thrust it into the bladder, in
" order to discharge the urine.

" I perceived the blackness of the internal
" gangrene in perinæo through the integu-
" ments, notwithstanding; and the violence

* A very calm and impressive manner of introducing his observations!

“ of the distemper induced me to desire a consultation, to strengthen the design I had of performing the operation called a puncture in perinæo, to facilitate the application of medicines to the disorder; neither had I room to expect that I could introduce my catheter into the bladder a second time, with the same success I had done before.

“ Messrs. Bessiere and Marechal were called in, who were of opinion, that, for the more speedy relief of the patient, whose bladder was distended by a large quantity of urine, it would be proper to introduce immediately a catheter, to evacuate that excrement.

“ But the putrefaction had made so great a progress, that the parts affected forming no canal, it was impossible, as I had before predicted, to pass an instrument beyond the cystis formed by the eschar, and consequently to evacuate more urine than was contained in that.

“ Nevertheless, the inflammation of the bladder, occasioned by burning the urethra, had communicated itself to the abdomen, which was perceptible by its violent tension. The patient lost his strength, and all hopes remaining depended on the success of this

“ puncture. I performed it, in the presence
“ of these gentlemen, upon the canulated probe
“ introduced into that cavity, and then passed
“ a small female catheter into the bladder,
“ by the incision I had made before, and re-
“ peated the introduction of it three or four
“ times per day, to evacuate the urine during
“ the life of the patient; for the inflammation
“ of the abdomen increased so fast, that shi-
“ verings, vomiting, and hiccup supervened,
“ which were the forerunners of death.

“ A priest, of St. Genevieve des Ardents,
“ came to the hospital at the same time, cruelly
“ tormented by the effect of such another
“ bougie; but the accidents were so sudden
“ and violent, that there was no time for re-
“ lief, the poor ecclesiastic dying in twenty-
“ four hours.”

After the Doctor’s reflections on these cases, he proceeds to relate the following, published by Verdun, in 1703.

“ Il y a des praticiens qui se servent d’un
“ petit tuyau d’argent, qu’ils introduisent dans
“ l’uretre jusqu’ aupres de la verruë; ensuite
“ ils passent dans le tuyau une sonde un peu
“ rouge pour servir de cautere; on en touche
“ legerement la verruë: n’ais cette operation

“ est fort douloureuse et difficile à executer.
“ Après ils font des injections avec de l'eau
“ rose, dans laquelle l'on a fait dissoudre un
“ peu de vitriol, avec de la luthie.”

“ Here,” says the Doctor, “ is proof positive, that a sound, made nearly red hot in fire, is passed through a tube to destroy the excrescence, and to serve as an actual cautery. Is it possible to conceive any application more irrational or barbarous? It is sufficient to make all human nature shudder at the cruelty of such surgery: well might the author say, it was very *painful* and *difficult to perform*. How lost to all sensibility must those have been, who applied such a fiery remedy to so exquisitely sensible a part as the urethra !!!”

Our author, continuing the subject in the same manner, gives the following extract from Mr. Jessé Foot:—“ This gentleman,” says he, “ has given lectures on the venereal disease and its consequences, and written a criticism on the new doctrine and opinions of the late Mr. John Hunter: he has treated the subject with much justice,* but rather ironically.

* Soon after Mr. Hunter's death, Mr. Jessé Foot published an Account of his Life, &c. Whoever has read it,

" When speaking of strictures in the ure-
" thra, their history, former and present me-
" thod of cure, he laments the contradictory
" opinions of authors on the affection, from
" 1550 to 1786, although the general mode
" of cure was not materially altered by their
" various conjectures of its cause; he attacks,
" with becoming fortitude, the daring asser-
" tion of Mr. Hunter, that dilatation, or ul-
" ceration by the simple bougie, and destruc-
" tion by lunar caustic, were the only means
" of removing stricture; and says, I have pe-
" rused the whole of the Professor's (Mr.
" Hunter's) chapter on the treatment of the
" permanent stricture; and I find that one of
" these weak bougies is the only remedy the
" Professor makes use of, to cure the stricture
" by dilatation; but, if this fails, the mode
" of cure by dilatation is to be abandoned,
" and his ulcerative method, or rather his me-
" thod by escharotics, are to come next into
" play."

He, (Mr. Foot) then mentions a pro-
cess, by which strictures are removed; and
will be able to determine, how far impartiality and justice
are to be expected from the pen of this gentleman, on this,
or any other subject.

and says, modern practice is not justified in the use of such violent and dangerous resources as caustic, without a trial of milder methods; but let him speak for himself.—

“ Has the Professor never heard of the catgut
“ bougies being in use? Has he never heard it
“ hinted that they had a preference, on many
“ accounts, to the feeble, slender bougie he
“ recommends? Has the Professor never read
“ any authors who have recommended them?
“ Does not he know that they are now brought
“ into general practice from their preferable
“ advantages? If he has not heard of them,
“ he is yet to be informed. If he has heard
“ of them, he has abused his readers by his
“ contemptuous silence. And if he does not
“ know of their application, and more certain
“ success in overcoming the most contracted
“ strictures, he has yet to learn what the whole
“ body of surgeons are already acquainted
“ with.”—He then severely attacks Mr. Hunter
on the arrogance of assuming the discovery
of applying caustic to the urethra, in 1752,*
which had been mentioned, particularly by

* How far this bold assertion of Mr. Jessé Foot is true, a reference to Mr. Hunter's own words, in the case already quoted at page 44, will prove.

Wiseman, above fifty years before, and by most succeeding authors, especially Sharp, in his Critical Inquiry, published in 1750.

The Doctor then proceeds to enumerate the ravaging effects of caustic applied to the urethra, in such an order of regular succession, as would naturally lead one to suppose them the necessary and constant occurrence from the practice, and takes great pains to point out the methods of treating them when they do occur.*

How far the two cases of Saviard, which are avowedly the *effects of empirical ignorance*, and the history of the practice by Verdun, militate against the application of caustic to strictures, or render it unsafe and improper in the hands of a regular practitioner, I cannot understand; and, as from Mr. Hunter's own words, it does not appear that the bold assertion of Mr. Jesse Foot is supported by truth, I think it perfectly unnecessary, in this place, to make any further comment on *his* observations.

In 1804, Mr. Whately published a treatise, entitled, "An Improved Method of treating

* Vide Rowley, p. 150, & seq.

“ Strictures in the Urethra.” Some time previous to the appearance of this, the same gentleman published some remarks on Mr. Home’s practice, “ but having seen,” as he observes, “ since their publication, additional objections “ to his method of treatment, he has added “ some further observations in this volume.”

To this chapter I shall mostly confine my remarks, as it is more particularly connected with the intentions of the present essay.

It is but justice to this gentleman to premise, that the extent of his objections is against the lunar caustic, and the manner in which it is employed by Mr. Home; not against the application of the caustic for the removal of strictures, as we find him very strenuous in support of the Kali Purum, a much more active and uncertain application than the other.

His objections to the method recommended by Mr. Home are, pain—haemorrhage—rigor—suppression of urine—fever—delirium—extravasation of blood in the perinæum, &c.—“ These,” he says, “ as noticed in the numerous instances which Mr. Home himself has given, seem, *prima facie*, to prove something against his mode of applying it; for, according to this representation, the re-

" medy is very often even worse than the
" disease."*

This, however, I do not consider as altogether the fair way of deciding. In making this remark, Mr. W. does not attend to one very material circumstance, a moment's reflection on which should convince him of the fallacy of his reasoning. From the time Mr. Home published the first edition, his practice in this branch has been most extensive; and, consequently, cases of the worst, as well as the mildest kind, have come under his care. Had he filled his subsequent publications only with cases, which readily yielded to the treatment, and concealed the rest, he would then have justly merited censure; but, on the contrary, the unsuccessful and difficult cases have equally a place with the others, and a greater stress is even laid on them; not "with that indifference
" which might lead to the supposition that the
" symptoms, &c. are the unavoidable effects
" of the most judicious mode of treatment;"†
but to point out, "that accurate, anatomical
knowledge, joined to experience, is abso-
lutely and unavoidably necessary, to enable

* Vide Whately, p. 94.

† Vide Whately's advertisement.

" the practitioner to follow up the treatment
" with success, and to deter those, who, for
" want of these advantages, cannot be ade-
" quate to the task."*

There is one fact, which must be familiar to every observing practitioner, that the same complaint puts on different appearances, or is accompanied with different symptoms in different individuals, certainly depending on the constitution. This is very evident with strictures in the urethra, and ought to be taken into consideration as well as the treatment; and I believe it will be found, that most of the symptoms, which are said to arise wholly out of the application, have before appeared during the progress of the complaint, and are, of course, to be considered as increased or aggravated, but not brought on, by the treatment. In a very considerable proportion of cases it will be found, that the cure is completed without the occurrence of rigor, suppression, or fever; and when these symptoms do occur during the treatment, it arises from the constitution having been brought into a considerable state of irritation by the continuance and violence of the complaint, to which

* Vide Home's Introduction to 2d. Vol.

is probably superadded a very intemperate mode of life.

False Passage consequence of the Treatment.

As a greater argument against Mr. Home's method of applying caustic, Mr. W. instances the following case of false passage, and says,

" As a ground of presumption that this consequence may follow this mode of treatment,

" I know of one instance, in which I was informed the caustic was used by Mr. Home a considerable number of times, without passing through the stricture to which it was applied; during which process the patient suffered extreme pain. After living in the utmost misery for about two years, he lately died, and was opened. A false passage was found by the side of the urethra, which extended between the bladder and rectum. It was evident, (as observed by the gentleman who opened the body) that the caustic bougie had entered this passage every time it had been applied; but it was impossible to say with certainty, whether the passage had been made by this,

" or by the previous use of a common
" bougie."*

We are not told by the author, whether this patient had been treated solely by Mr. Home, or whether he had been previously in the hands of any other practitioner; but, from his allowing the possibility of this false passage to have been made by the previous use of a common bougie, I think it but fair to conclude, *that the whole obloquy of the case does not justly fall upon Mr. Home's caustic.*

That false passages may be formed by the caustic bougie, in the hands of injudicious and inexperienced surgeons, is not to be denied; and as cases of this kind, treated by other surgeons, have afterwards come under Mr. Home's care, I should be very much inclined to doubt, from his reflections and observations on them, whether such a circumstance is probable, or likely to occur to him, where the management of the case has been wholly intrusted to his direction from the beginning.

" It does not appear," says Mr. Home,
" that any material advantage can be gained
" from the histories of many cases of this
" kind, which must be very similar to one

* Vide Whately, p. 98.

“ another; all that is meant is, to point out
“ the error which may be committed, the
“ mode in which it may be guarded against,
“ and when it has taken place, how it is to be
“ remedied.

“ The following case is the worst of the
“ kind I have ever seen, as no instrument
“ could be passed into the bladder; it will
“ explain the extent to which a false passage
“ may be made, without the surgeon’s being
“ aware of it, and shew how slight a degree
“ of disturbance it may produce in the neigh-
“ bouring parts.

“ A gentleman, who had suffered from irri-
“ tation in the bladder, consulted his surgeon,
“ who, upon examining the urethra, found
“ strictures, which were considered to be the
“ cause of his complaint, and the use of the
“ caustic was adopted for their removal. Se-
“ veral strictures were removed in succession,
“ and the bougie, after the caustic had been
“ applied fifty or sixty times, was made to
“ pass eight inches from the external orifice,
“ but could not be made to reach the bladder.
“ Under these circumstances I was consulted,
“ and had no hesitation in declaring the
“ bougie must have taken a wrong direction;

“ but as the bougies used had been much too
“ small, and one of the proper size could only
“ pass five inches down, I proposed applying
“ the caustic there, and that, by going on in
“ this way, things might be brought right.
“ Six applications to this part enabled the
“ bougie to pass down to seven inches. While
“ we were employed in removing this second
“ stricture, the constitution seemed much dis-
“ turbed; and, whenever he went to sleep,
“ there was an involuntary passing of the
“ urine; this was, in a greater degree, after
“ each application. An attack of fever came
“ on, which reduced him exceedingly, and
“ continued for a week or ten days; this was
“ followed by a purging and night sweats.
“ An erysipelatous inflammation attacked the
“ mouth, and spread itself along the whole
“ intestinal canal, producing mortification in
“ the ilium, and death.

“ Upon examining the body after death,
“ there was found a large stone, filling up the
“ cavity of the bladder, having a small pro-
“ jection, which lay in the orifice leading to
“ the urethra. There was another small stone
“ in the urethra itself, which had opposed the
“ end of the armed bougie, and turned it

" against the lining of the urethra; by continued applications, a false passage had been made nearly two inches long, the internal surface of which was so smooth, as not to be distinguished from that of a natural canal; nor did there appear to be any other mischief arising from it, than its preventing the bougie from taking its proper course."*

From the history of this case it is evident, that the false passage was formed by the use of too small a caustic bougie in the first instance, which, not being able to be applied to the whole surface of the stricture, had only destroyed the under part of it; on which account the resistance made by the stones had forced the armed bougie out of its proper course. This there can be no difficulty in understanding; and it becomes a strong reason why the diameter of the bougie, which is armed with caustic, should be as large as the canal will readily admit.

If the caustic be inserted in the end of a bougie, much smaller than the diameter of the urethra, it is very evident that the instrument, in this instance, will not fill the canal, and, of course, the caustic must be liable to touch the

* Vide Home, Vol. II. p. 320.

sound part of the urethra before it reaches the stricture; if the consequence of this should be a spasmodic contraction at that part of the canal, there would be too much reason to apprehend that the subsequent applications would be productive of much mischief, and ultimately form an opening through the sound urethra, at the part where no stricture before existed. But should nothing prevent the bougie's being properly passed down to the stricture, the diameter of it being much less than that of the canal, it could not be equally applied to the whole surface of it; an angle would then be formed with it and the lower edge of the stricture, by which one half only of the obstruction would be destroyed; and, as the upper portion remaining would prevent the bougie's entering the bladder, the practitioner would continue his operations, and the dissolved caustic, naturally insinuating itself into the membrane of the urethra at that point, would ultimately form a false passage.

If the armed bougie is as large as the canal will readily admit, and the impression of the white bougie be frequently observed with attention, there is no chance of such an accident happening, as the caustic will then be

equally applied to the whole surface of the stricture. As, however, there is a possibility of the stricture not being equal on all sides, in which case the lower portion of it may be destroyed before the upper part, I have, for a long time past, whenever the impression at the end of the white bougie has been at all doubtful, covered the lower half of the caustic with a thin coating of the plaster of which the bougie is made, leaving only the upper half of it exposed; by which precaution, and occasionally passing the catheter, I am fully convinced that there will be no reason to apprehend this dreadful effect.

The armed bougie employed should be as large as the canal will readily admit, for two very obvious reasons; viz. to prevent the caustic's being applied to a part of the urethra where there is no stricture, by which a false passage might be formed; and, 2dly, to prevent any stricture, which may be in a less contracted state, from escaping notice; in which case the patient would not obtain relief, and the treatment would naturally fall into discredit; both of which circumstances are fully explained by the following cases:

CASE I.

A gentleman contracted a venereal gonorrhœa in 1803, for the cure of which injections were employed. After the infection was considered as destroyed, the discharge, which continued, was treated as a gleet; various kinds of injections were continued for more than three months.

He was also subject to nocturnal erections, and involuntary emissions during sleep, which latterly became very frequent and troublesome.

Opium, combined with emetic tartar, in small doses, were given to allay this irritation. He had a very frequent inclination to void his urine whenever he used much exercise, and it was generally attended with pain and difficulty.

From the obstinate continuance of these symptoms, the physician, under whose care he was, suspected a stricture to be the cause of them, and desired that I might be consulted.

On passing a full sized bougie, I met with a stricture at six inches.

The use of the caustic was now determined

on, and he put himself under my care for the treatment.

Two applications removed the first obstruction, and five the second, which was at seven inches; after which, a full sized flexible gum catheter passed with ease into the bladder, and his symptoms gradually subsided.

Previously to my seeing this patient, the Doctor examined the urethra by a bougie considerably smaller than the external orifice would readily admit, which was arrested at about three and a half inches. This was considered to have been the seat of the first stricture; and had an armed bougie of the same size been applied to this point, much mischief would, in all probability, have been the consequence.

CASE II.

A gentleman, of a very costive habit of body, contracted a gonorrhœa some time in the year 1800, for the removal of which injections were employed during three months: at this time the discharge ceased; but, from the costive state of his bowels, he had a sense of weight and pressure about the lower part of the abdomen, more particularly after meals,

however moderate they might be. He had also an occasional heat in passing his urine, and at the under part of the urethra he often experienced an acute momentary pain, extending itself to the bladder: this latterly became very frequent; but as his urine passed in a tolerable stream, it did not occur to him that he had any obstruction in the canal. On examining the urethra by a bougie, a stricture was met with at six inches from the external orifice, for the removal of which the caustic was applied twenty-four times, after which the bougie passed on to another at seven inches; four applications to this allowed me to introduce a large sized flexible gum catheter into the bladder. After this, he did not experience the smallest heat in voiding his urine, nor did he feel the acute pain before noticed. For two or three weeks I continued passing an unarmed bougie every second or third day, and the parts were then allowed to remain quiet for more than a month; at which time he told me he had a return of the pain, and occasional nocturnal erections, which were generally attended with much uneasiness, and begged me to pass a bougie again. By some accident the bougie, which had been before passed, was

mislaid, and the one I now used was a full size larger; this gave great pain at about four and a half inches, but passed on to seven, where it was arrested. As it was evident that the whole of this obstruction had not been destroyed, I proposed the application of a much larger surface of caustic than had been before used; but on passing it down, it would not go beyond four and a half inches. This, then, satisfactorily explained the reason of his symptoms returning, and was also a very plain elucidation of the inefficacy of the simple bougie; for, in this case, not having begun with so large a sized bougie as the canal would admit, the stricture at four and a half inches had escaped notice, the aperture of it being sufficiently large to allow the other bougies to pass through it, and, by their mechanical pressure; that part of the canal was kept in a dilated state, on which account also we could never completely destroy the stricture near the bladder. A few applications allowed the bougies to pass on to seven inches; and two more, at this point, completed the cure.

Too much stress cannot well be laid on this case, as it shews the necessity of using as large a bougie as the external orifice will readily ad-

mit; and, in such cases where the orifice itself evidently is in a contracted state, it should be enlarged with caustic before we proceed to destroy the other strictures, otherwise we shall often fail of giving that relief to the patient which he is led to expect; moreover the treatment will, in a great measure, fall into disrepute; as that stricture near the bladder, never having been completely destroyed, will necessarily fall into a more contracted state; and in this manner the disease will be continually returning, in the same way that it does when treated by the simple bougie.

HÆMORRHAGE.

Mr. Whately considers the danger of a hæmorrhage from the urethra, during the treatment, so serious, as at once to become an unanswerable objection to it; and accuses Mr. Home of treating it with too much levity; because, from his cool and steady conduct, he succeeds in rendering the mind of his patient tranquil and easy, the first grand step towards its removal.

That a hæmorrhage sometimes occurs during this mode of treatment, I do not pretend to

deny; but that it forms such a serious objection to it, I am by no means convinced. It is far from being a common occurrence; and in all cases where I have met with it to any extent, the stricture, to which the caustic had been applied, was destroyed.

In hæmorrhages from the urethra, it is to be recollect^d that the bladder is always kept in a state of irritation, and continually getting rid of its contents; and as, from the experiments of Mr. Home,* we find that blood will uniformly mix with urine in equal parts, there is no difficulty in understanding that at least one half of the fluid, which passes off during a hæmorrhage of this kind, is urine. This is a circumstance, however, not known to patients, and I believe that many practitioners are wholly unacquainted with it. It, nevertheless, becomes a strong reason why the practitioner, who is acquainted with this fact, should feel less alarmed for the *apparent danger* of his patient; and a little reflection on the strong influence which the mind has on those parts, sufficiently points out how necessary it is for

* Vide Home, Vol. I. 2d edit. p. 447, or Philosoph. Trans. Vol. LXXXVI.

us to make our patient's mind easy ; and this can only be done by such cool and steady conduct as must impress on him how much he had over-rated his danger.

I cannot, however, agree with Mr. Whately, as to the manner in which this hæmorrhage is brought on. He considers it " as being a " strong indication, either that the part of " the membrane of the urethra, to which the " caustic was applied, is entirely destroyed, " and that the cells of the corpus spongiosum " are thereby exposed ; or that the bougie is " making its way into a false passage."

This I cannot believe to be the reason of these hæmorrhages taking place. We know very well that all diseased structures are more or less supplied with blood vessels, and that a rupture of these vessels must necessarily produce an effusion of blood. If, then, a stricture is destroyed by the application of caustic, and the slough is thrown off before the inflammation had united the sides of the vessels leading to it, the mouths of them being exposed, would necessarily give vent to a certain portion of blood, the quantity of which, however, would greatly depend on the state of the patient's mind. It is in this manner only

that I can understand a hæmorrhage to take place during the application of caustic: it may also be brought on by the simple bougie, if too much force is employed, so as to rupture the contracted part; and instances of violent bleeding are met with, when neither caustic or bougie have been used.

The two following cases have lately fallen under my care:

CASE I.

F. A. a Portuguese, put himself under my care, in consequence of a violent bleeding from the urethra. The first symptoms of stricture appeared in February, 1805. They were painful erections, and seminal emissions during sleep; seldom a night passed without one or two emissions, sometimes more; soon after the appearance of these symptoms, he experienced a considerable pain and difficulty in voiding his urine, and occasionally a discharge from the urethra. As he had never had any venereal affection, and had not had any communication with a woman for more than two months, he was at a loss how to account for these appearances. He applied to an apothecary in the island, who gave him medicines; but

not getting better, after a considerable use of them, he was recommended to leave the disease to nature.

On the 21st of May, he had connection, for the first time since these symptoms had appeared, and, to his great surprize, found that the act of emission was accompanied with a considerable discharge of blood, which continued passing from him for more than half an hour.

On the following morning he applied to me, but, as his urine was still mixed with blood, I ordered him some laxative medicine, and desired him to keep quiet till every symptom of bleeding had completely subsided.

On the 28th, seven days after, the bleeding spontaneously returned with considerable profusion : he was directed to keep quiet ; his bowels were opened ; a solution of emetic tartar was given in small doses to excite nausea, and his mind was made easy, by the strong assurances of its not being of any material consequence. In a few hours it stopped ; but, on the 1st of June, four days after, it again returned about four in the afternoon, without any cause to account for it ; by the repetition of the same plan, and applying cloths wet with

vinegar and water, to the perinæum, &c. it subsided in about thirty-six hours, and did not return again.

June 14th. I examined the state of the canal by a bougie, and met with a stricture at two inches, to which I applied the caustic; two applications destroyed it, and both bougies passed to a second at six inches. After four more applications, this was also removed, and the caustic applied to the last at seven inches. This required twelve more; after which, a full sized flexible gum catheter passed with ease into the bladder.

No bleeding returned during the treatment.

This case confirms three important facts, viz. That a hæmorrhage, to a considerable extent, may take place, without a breach being made through the membrane of the urethra, and exposing the cells of the corpus spongiosum, as no bougie, of any kind, had been passed previous to it. Secondly, that the quantity of fluid discharged from the urethra was not all blood, as, during the longest period of the hæmorrhage, he had not the smallest inclination to make water, nor was the bladder in the least degree distended. We cannot reasonably suppose that the secretion of urine was sus-

pended during this time; but, on the contrary, it is very easy to understand, that, from the state of irritation, the bladder was continually discharging the urine, which, as it mixes uniformly with the blood, made no distinct appearance: and lastly, it proves the necessity of keeping the patient's mind as composed as possible, in order that the small vessels, from which the blood flows, should be enabled to contract, and put a stop to the bleeding.

CASE II.

A boatman applied to me in December last, in consequence of a violent hæmorrhage which came on after a connection, probably from having imprudently repeated it before the parts had recovered their tone; it continued for some hours, and then stopped spontaneously, but returned on the following morning. I ordered him a solution of emetic tartar, to be taken in small doses, so as to excite nausea, to keep perfectly quiet, and, if the bleeding continued, to apply cloths wet with vinegar and water to the perinæum. It stopped in about an hour, and did not return again.

Dec. 23d. I examined the canal by a bou-

gie, and met with a stricture at one inch from the external orifice, to which the caustic was applied. Several strictures were removed in succession, until a bougie could be passed into the bladder; but during the whole of the treatment, there was no return of the hæmorrhage.

As, then, a hæmorrhage from the urethra, to a considerable extent, may take place without the application of caustic or a bougie, I cannot see any just reason why the caustic should, on all occasions, be blamed for it, or why such an occurrence, during the treatment, should be considered in so formidable a point of view, as to become an unanswerable objection.

If this effect took place in all, or most cases, during the treatment by caustic, and upon no other occasion; and if it was, in a great proportion of cases, to terminate fatally, it would then be a strong argument against the practice; but this we do not find by any means to be true.

The following cases of hæmorrhage, during the treatment by caustic, are the most considerable that have occurred to me; none of

them, however, were attended with any serious consequences.

CASE III.

A soldier, of the Royal Artillery, was admitted into the Artillery Hospital at Chatham barracks in the beginning of July, 1802, with symptoms of stricture in the urethra. The bougie met with an obstruction at seven inches, which eight applications of the caustic destroyed, and it then passed on to the bladder. After the last application, he had a slight hæmorrhage, but not sufficient to create alarm.

CASE IV.

A bombardier in the Royal Artillery, was admitted to the hospital at Chatham barracks on the 20th of October, 1802.

He complained of great pain in his loins, more particularly in the region of the kidneys, and also at the neck of the bladder; a frequent inclination to void his urine, which was attended with pain and difficulty; he passed but very little at each time, had frequent erections, with involuntary emissions, during sleep, and

a slight discharge from the urethra, which he considered as a gleet from the time it had continued.

By his own account, I learnt that the last gonorrhœa he had contracted was about eighteen months before. In the year 1797 he first experienced these distressing symptoms. The attack lasted three or four weeks, and then gradually subsided.

In May, 1798, he had a second attack, much more severe than the former, obliging him to void his urine every fifteen or twenty minutes during the night; this, however, subsided by remaining perfectly quiet, and taking some mild aperient medicine: these attacks were always accompanied with considerable costiveness.

It was not till October, 1801, that his symptoms were known to arise from strictures in the urethra; at that time he was received into the Royal Artillery Hospital at Woolwich, and put under a regular course of bougies. Some alterative drops were also given to him, and, after a continuance of this plan for a considerable time, he was discharged from the hospital as cured.

The symptoms, however, returned in a few

months, and he was getting much worse at the time he was admitted into the hospital under my care.

On passing a bougie of as large a size as his urethra would admit, for it was unusually small, I met with a stricture at six and a half inches from the external orifice, and, from the impression which the white bougie had received, I considered it to have been of considerable standing.

On the 21st of October, I applied the caustic, and, after the fourth application, both bougies passed on to full seven inches, where the stricture required nineteen applications, before it would admit the bougie or flexible gum catheter's being passed into the bladder.

December 7th, the day after the last application, he had a slight hæmorrhage, which continued for several hours; it stopped spontaneously about eight in the evening. On the 9th, it returned in the morning, and more violently than the former; this naturally created great alarm in his mind. I, however, thought so favourably of this occurrence, that I assured him there was no danger, and that it was a proof to me of the stricture being destroyed. As his mind became more easy, the hæmorrhage

abated, and stopped altogether by noon ; the parts were allowed to remain perfectly quiet for several days, and, on the 16th of December, I passed a flexible gum catheter into the bladder. All his former symptoms of stricture subsided, and he seldom had occasion to make water more frequently than once in four or five hours.

CASE V.

A gentleman's servant applied to me in December, 1803, in consequence of a discharge and heat of urine, which had continued on him for upwards of six months, at which period he contracted a gonorrhœa.

The introduction of a full sized bougie discovered a stricture at full seven inches from the external orifice, to which the caustic was twice applied ; on the day following the last application, he had a considerable hæmorrhage, but not sufficient to alarm him ; the parts were, therefore, allowed to remain quiet for a few days, after which a very large sized flexible gum catheter readily passed into the bladder.

His symptoms entirely left him in about a fortnight after.

CASE VI.

A. B. about twenty-eight years of age, put himself under my care for the following symptoms of stricture, viz. an occasional slight discharge from the urethra, frequent inclination to make water, with some degree of pain in voiding it, pain about his loins and above the pubes, which was always increased by the force which was necessary to expel the urine.

For the relief of these symptoms he had applied to different practitioners; but the immediate state of the urethra had never been considered as connected with his complaints.

August 1, 1804, I first applied the caustic bougie to a stricture at six and a half inches; after seven applications an hæmorrhage came on, which alarmed him considerably; before, however, I saw him it had stopped, and, as I assured him there was no danger, his mind was gradually restored to a tranquil state. On the 17th of August, four days after the hæmorrhage, I introduced a full sized flexible gum catheter into the bladder; 22d ditto; October 1st ditto. He now felt no pain in his loins or region of the bladder, and, when he makes water, it flows very readily, without the smallest incon-

venience; the discharge left him immediately upon the stricture being destroyed.

*Strictures, that have been removed by Caustic,
occasionally return.*

The great object of the present mode of treatment is to produce a permanent cure, which, as was before observed, cannot be effected by simple dilatation.

There are, however, some cases which do not admit a permanent cure, in which the contraction is liable to return,* and others which are wholly incapable of being cured. Mr. Whately asserts, that, when the lunar caustic is applied for the removal of bad strictures, if it be successful in opening a passage, it becomes the cause of fresh strictures, which, he says, are always more contracted, considerably worse, and often impossible to be removed. He endeavours to support his argument by much ingenious reasoning. The fact is, that strictures of long standing, when their local effects have been violent, produce such a

* Mr. Home has sufficiently explained this in the second volume. See General Observations, &c

change on the urethra, that renders it liable to fall again into a contracted state, even though they shall have been destroyed by caustic; but I believe, on most occasions, it may be avoided by frequently passing a bougie.

I have only met with one case of a return, after the strictures had been removed by caustic; with two, in which the caustic has been altogether unequal to procure a passage; and one, where the constitutional symptoms were not altogether relieved, after an instrument had been passed into the bladder.

*Case of Strictures, which were removed by
Caustic, and afterwards returned.*

A watchmaker, in the city of Funchal, fifty years of age, contracted a venereal gonorrhœa about thirty years ago, of which he was cured by injections. A year after this he received another infection, which was accompanied with considerable inflammation; the discharge was mixed with blood. This, however, like the former, was ultimately removed by a similar treatment.

About three years from the first infection, he married.

Shortly after this, he began to perceive a gradual diminution in the stream of urine, till at length the orifice appeared to him to be nearly closed. He applied to a surgeon, who gave him a bougie, desiring him to pass it; this he did, but the degree of irritation, which it brought on, occasioned a complete suppression of urine, which continued for twenty-four hours, and was not relieved till the introduction of a catheter could be effected.

After his bladder had been thus emptied, he took some anodyne medicines, which, by removing the spasm, enabled him to pass his urine as before.

The alarm which this attack created in his mind, induced him to consult an English physician, at that time on the island, together with his former surgeon; the result of which was, that he should daily pass a small bougie into the bladder, and allow it to remain in during the night. The irritation of the bougie, in this instance, brought on inflammation, and swelling of one of the testicles, which was nearly a month before it could be reduced to its natural size.

He now became tired of the bougie, and allowed his complaint to take its own course.

From this period the stream of urine became much more diminished in size, often passing only by drops; the quantity voided at each time gradually lessened; and the inclination, or rather necessity, of passing it became distressingly frequent, requiring much force to expel it, and generally attended with pain, till at length it frequently amounted to a partial suppression.

He was now again induced to seek relief; and, after having mentioned his situation to several practitioners, he applied to Dr. Adams, some time in the year 1802, who, considering his case such an one as would derive benefit from the caustic, strongly recommended him to go to London for the purpose of getting cured. Family concerns, however, prevented him from undertaking the voyage at that time.

Some little time after this I arrived, and, at the Doctor's desire, was consulted.

After learning the above history, and examining the state of the canal by a bougie, which met with an obstruction at three inches from the external orifice, I felt no difficulty in assuring him that considerable relief might be obtained by a regular and steady perseverance

in the use of the caustic, and that I had no objection to undertake the management of the case.

At this time, May 6th, 1803, he could not pass his urine without considerable straining; and only a very small quantity at each time; he was obliged to void it every half hour during the day, and seldom could retain it longer than a quarter of an hour through the night; for several months past there had been a great quantity of thick glairy mucus discharged with his urine, which, if suffered to stand for half an hour, separated, and appeared, both in colour and consistence, like the white part of a stale egg. His appetite was much impaired, and he had considerable fever. In this state life was but a miserable existence, and he was willing to try any plan that offered the smallest prospect of relief.

I applied the caustic to the first stricture, which gave way with the fourth operation; nine more allowed the bougie to pass to five and a half inches. At this time he caught cold, and the use of the caustic was suspended for several days, in consequence of an inflammation in his testicles.

On the 20th of June, after the application,

he had a paroxysm of fever, similar to ague, which proved to be the effect of a stricture giving way. Twelve more applications allowed the bougie to pass on to seven inches, where the stricture required the caustic twenty-six times, and then I was enabled to pass a full sized bougie into the bladder. He now became sensibly convinced of the benefit he had received from the treatment; he could pass his urine in a full stream, without the smallest pain or difficulty, often more than half a pint at a time, and without mucus; had seldom occasion to make water oftener than once in five or six hours; his appetite was good, he had no fever, and was able to get his natural rest.

In this case fifty-four applications of the armed bougie removed six obstructions, viz.

| | | Inches. | | No. |
|-----|------|----------------|-------|-------|
| 1st | at | 3 | ..... | 4 |
| 2d | .... | 4 | ..... | 1 |
| 3d | .... | 5 | ..... | 8 |
| 4th | .... | $5\frac{1}{2}$ | ..... | 8 |
| 5th | .... | $6\frac{1}{2}$ | ..... | 7 |
| 6th | .... | 7 | ..... | 26 |
| | | | | <hr/> |
| | | | | 54 |
| | | | | <hr/> |

September.— Four or five times during this month I passed a bougie into the bladder, and not meeting with any impediment, I considered him cured. I, however, recommended him to pass a bougie occasionally, which he only did once or twice, not considering this precaution at all necessary.

In August, 1804, twelve months after the bougie had first passed into the bladder, he experienced a slight degree of heat in his urine, and perceived the stream somewhat diminished. I endeavoured to pass a bougie, but found it met with resistance at five inches. The caustic was again applied to it; this readily gave way, and it was afterwards applied to the following strictures, which had also become somewhat contracted, viz. at five and a half, six and a half, and seven inches. Fifteen applications to these, in succession, allowed the bougie to be again passed into the bladder.

As there was evidently a strong disposition to contraction in the urethra of this patient, I determined to pass a curved bougie, or flexible gum catheter, into the bladder regularly once in two or three weeks.

I cannot, however, allow that the return of the complaint, in a case like the present, forms

any ground for an objection to the treatment; and, I believe, if care is taken to pass a bougie at short periods after strictures have been removed, that a return of them would be avoided altogether. At least, it is natural to suppose, that if, according to Mr. Whately, the action of lunar caustic in destroying strictures, was to produce fresh contractions in one instance, that the re-application of it to destroy these new obstructions, would also bring the canal into the same state again; but in this instance, a flexible gum catheter has been regularly passed once a fortnight, and more than eighteen months have elapsed without the smallest appearance of a return.

There is another circumstance to be noticed in this case; the strictures took place at the same situations which had before been narrowed in regular succession; a proof sufficient of their not having been fresh contractions in consequence of the caustic, but that the urethra had not lost the disposition to contract at those points.

That the chance of a permanent cure is much more likely to be effected by the caustic, in destroying the contracted part, than by the simple bougie, which only acts by dilatation,

appears, at first sight, so evident, as not to require facts to prove it; but as in many instances it has been denied, and even said to be productive of worse contractions than the original ones, it becomes necessary, not only to collect cases in support of the fact, but to oppose them to the opinions of those, who have written particularly against the practice, and in support of the simple bougie. Amongst those, Mr. Benjamin Bell, whose opinion and observations must always have considerable weight, although a great advocate for the simple bougie, confirms, by his own words, what I have advanced on the inefficacy of that instrument; "For," says he, "the sudden and " unexpected manner, in which patients are " often attacked with a return of strictures, " has given cause to suspect, that in such in- " stances they must proceed from spasm. But " the obstinacy, with which they often con- " tinue, as well as every other circumstance " that attends them, renders it obvious, that, " in a great proportion of cases, they proceed " from causes of a more permanent nature " than spasm is commonly found to be."*

* Vide Bell, 2d edit. Vol. I. p. 296.

Surely Mr. B. must admit, that *this permanent cause* could not be produced at the very instant that the symptoms appear, but must have been of long continuance; if so, there cannot be a stronger corroborating evidence against the permanency of a cure effected by use of the simple bougie.

These form the principal objections that have been made to the treatment; there are yet others of a smaller magnitude—occasional swellings in perinæo, which sometimes subside, at others suppurate. This Mr. Whately considers as a proof of vessels being ruptured by the caustic. I am rather induced to look upon those swellings, in most instances, as the effect of irritation. How often do we find the glands of the axilla and groin swell, and even suppurate, from irritation? And may we not suppose that, in some particular constitutions, a swelling in perinæo may come on from the same cause, without the necessity of blood being extravasated to account for it? The same effect is often brought on by the simple bougie; and many instances of inflammation, with swelling of the testicle, are also to be met with during the use of it.

*Caustic falling out and remaining in the
Urethra.*

It is a fact of considerable importance to be known, that if the caustic should get loose, and be left in the urethra, it is not productive of inconvenience. The accident has happened to Mr. Home,* and, in the beginning of my practice, I also have met with it. As, however, it is not a desirable circumstance, it ought always to be avoided, and always may, when the bougie is armed with sufficient care.†

* Vide Home, 2d edit. Vol. I. p. 182, & seq.

† The following method has been recommended as the best manner of arming bougies:

After the linen is prepared, by being dipped into the composition, and cut in strips, according to the size of the bougie, take a piece of wire the size of the caustic, and, in forming the bougie, let it be rolled round it at the end, in order to leave an opening, in which the caustic is to be introduced; when the bougie is nearly formed, put the piece of caustic in, and continue rolling it till the instrument is perfectly even.

This manner of arming bougies is extremely objectionable. In the first place, you can never introduce so large a surface of caustic as the bougie would otherwise admit, and also the caustic is very liable to fall out. But if, after the bougie is formed and firm, you heat the point of a piercer, which should

I cannot conclude this chapter, without making one general remark on Mr. Whately's observations, relative to the treatment recommended and practiced by Mr. Home. Throughout the whole of them, he is continually making Mr. Home "thrust his large armed bougie "through the strictures, until he can obtain a "free passage to the bladder." I apprehend this has arisen from Mr. Home, in his work, having frequently used the word "through;" as "the armed bougie passed through the "stricture, and the caustic was applied to a "second," &c. Mr. H. however, does not mean it to be understood that the force, which he employed, made the bougie pass through the contracted part of the canal, but merely that the action of the caustic had rendered that point sufficiently pervious to admit both bou-

be conical in shape, and make an opening in the end of the bougie with it, the composition becomes melted, and will then have a good hold of the caustic. The point of the bougie should then be rubbed smooth on a piece of polished marble, till no inequality in the size of the bougie appears. This will also make it grasp the caustic so firmly, as to render impossible that it should fall out.

The size of the caustic also may be much larger, by this method of arming bougies, than can be introduced in any other way.

gies being passed further on. That this is his meaning is very evident, and I should not have conceived it possible for any one to have misunderstood it.

In p. 108 of Mr. Whately's Treatise, we find the following remark : " It appears highly probable, therefore, that the caustic bougie, as used by Mr. Home, is, for want of such extension of the penis in cases of this kind, prevented from acting directly on the stricture ; and that, in consequence of its hitching on some part of the urethra, it may sometimes be forced into the substance of the corpus spongiosum, instead of making its way through the stricture," &c. &c.*

Mr. Home, in his lectures, is very particular in his directions for passing the arined bougie, particularly when applied to a stricture at seven inches ; and, in his Treatise, he recommends the frequent passing of a catheter more curved than ordinary, in those cases that require a great number of applications to the stricture at this point, or when there appears to be any irregularity in the urethra.

* It is evident Mr. Whately never saw the caustic applied by Mr. Home, otherwise he would not have made this observation.

Upon the whole, it would appear that Mr. W.'s remarks are levelled against Mr. Home, without reflecting that the failure and unpleasant occurrences, in many instances, are owing to the mismanagement of cases in the hands of inexperienced practitioners, and frequently to the imprudence of patients themselves.

This is evidently intended to overturn one mode of practice by introducing another, which differs only in the kind of caustic used, and the manner of applying it, as he says in p. 127.
“ At the same time there is no doubt, but that
“ many sound cures have been made by Mr.
“ Home's mode of treatment; but I contend
“ that these might have been effected by a
“ method of applying caustic, without the risk
“ of producing that dreadful train of effects
“ enumerated by him,” &c. &c.

CHAPTER VII.

CASES OF STRICTURE IN THE URETHRA
WHICH HAVE BEEN RELIEVED BY THE AP-
PLICATION OF LUNAR CAUSTIC, SOME OF
WHICH HAD BEEN PREVIOUSLY TREATED BY
THE SIMPLE BOUGIE WITHOUT EFFECT.

CASE I.

A. B. a soldier in the army at Minorca, applied to me in 1800. He complained of having a discharge from the urethra, which had been of long duration, and occasional pain in voiding his urine; these symptoms were increased when he was obliged to use much exercise.

The man was married, had a family of healthy children, and had no reason to suspect any venereal affection.

On passing a bougie, it met with a stricture at five and a half inches from the external orifice; to this I immediately applied the caustic, and, after six applications, the bougie passed on to seven inches, where it met with a second obstruction. This was removed by

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twelve applications, and the symptoms completely disappeared.

CASE II.

An officer in the army at Minorca, about forty years of age, of an extremely anxious and irritable disposition, applied to me in consequence of frequent suppressions of urine, to which he had been long subject. He had a slight discharge from the urethra, and a continual inclination to void his urine, which passed in small quantities, generally with pain, and frequently had an involuntary discharge of it through the night.

These symptoms he had experienced for several years, and they were much aggravated by an irregular mode of life.

He told me that he could trace an obstruction in the passage of his urine, to the use of a strong injection, which he had employed more than seven years before, for the removal of a gonorrhœa, (which, as he was a married man, he was the more anxious to have cured as soon as possible,) and from that period he had been obliged to pass a bougie very frequently, but never experienced more than tem-

porary relief from it; and that, instead of his being able to increase the size of the bougie, he was always obliged to use one of a smaller size than the former, till at length he could only pass one of the finest kind.

On examining the urethra by a full sized bougie, it met with a stricture at four and a half inches, which gave way after a few applications of the caustic; it was then applied twice to a second stricture at five and a half inches; but, from the intense heat of the climate, and the irritable state he was in, he had more frequent and violent attacks of suppression; on which account I recommended him to return to England, and put himself under the care of Mr. Home, which he did.*

CASE III.

An officer in the army, while living with a girl in London, with whom he had long been in habits of intimacy, perceived a discharge from his urethra, with some heat in voiding his urine. This did not appear till after he had cohabited with her for a considerable time; it naturally created alarm, and he immediately

* For the rest of this case, see Home, Vol. II. p. 282.

applied to a surgeon of eminence in London, who assured him that he had contracted a venereal gonorrhœa, and accordingly gave him an injection, with proper directions for its use. Not getting better, after having continued the plan for some weeks, he stated his case to me, by letter, in June, 1802: in answer to which I assured him, that his symptoms must have arisen from strictures, and not gonorrhœa, and recommended him to put himself under the care of Mr. Home, for the treatment by caustic. This he immediately did; and, previously to his leaving England to join his regiment at Malta, he wrote me word, that a few applications of the caustic had produced the desired effect, and that he also found his general health considerably improved.

CASE IV.

A soldier of the Royal Artillery was admitted to the Artillery Hospital, at Chatham barracks, in July, 1802. He complained of pain in making water, a frequent inclination to void it, with a very slight discharge. The man concluded that he had got a clap; but, by a further investigation, and passing a full sized

bougie, I found that the symptoms arose from stricture.

After a few applications of the caustic to a stricture at five inches, the bougie passed on to a second at full seven inches, to which the armed bougie was applied twelve times before it was destroyed.

All his symptoms were now removed.

CASE V.

A gentleman applied to me, in 1802, in consequence of a stricture in the urethra. He never had contracted a venereal gonorrhœa but once, and, as it was now three or four years since that period, and as the injection he used at the time was rather astringent, he conceived that the seat of his complaint was in the bladder.

On passing a bougie, I found an obstruction at six and a half inches, to which I applied the caustic; and, after fourteen applications, the bougie passed on to the bladder.

The symptoms were all removed, the principal of which were a frequent inclination to make water, and involuntary emissions during sleep.

CASE VI.

An officer in the Royal Artillery applied to me, in the latter end of October, 1802, for an injection, or some strengthening medicine, to remove a gleet, which he considered to be owing to weakness. From circumstances he had no reason to consider his complaint as venereal, and could not allow it to be a stricture in the urethra, as he said he could make water *as well as any man*; but, on a more minute enquiry, I found that he had a more frequent inclination to make water than natural, and that he could not use the smallest exercise of riding or walking, without the necessity of passing it still more frequently. These were circumstances which he had not attended to, nor did he consider them as at all connected with the discharge. I, however, convinced him to the contrary; for, on the introduction of a bougie, it met with an obstruction at seven inches, which gave way after sixteen applications of the caustic, and allowed the bougie to be passed into the bladder.

The discharge subsided, and he had not occasion to make water more than three or four

times in the twenty-four hours, excepting when he drank too freely. He was not, however, affected by exercise in the manner he used to be.

CASE VII.

April 6th, 1803. I was applied to by a Portuguese in this island, for the removal of a discharge, which he considered to be a gleet; he had also a frequent inclination to void his urine about five or six times in the course of the day, and oftener during the night; this was occasionally attended with pain. On examining the canal with a bougié, I discovered a stricture at four inches, which was destroyed by one application of the caustic, and the bougie passed on to another at seven inches, which yielded to four. I was then able to pass a bougie into the bladder with great ease; the discharge gradually subsided, and the inclination to make water became natural, not more than four or five times in the twenty-four hours.

CASE VIII.

A. B. an Escrivao to the Juiz de Fora, applied to me in May, 1803. He had long ex-

perienced a difficulty and some pain in voiding his urine; he had a frequent inclination to do it, and had a slight discharge from the urethra; his most distressing symptom, however, was an involuntary flow of urine, which occasionally took place during sleep. I applied the caustic to a stricture at five inches, and by seven applications, three obstructions were removed; a full sized bougie passed on to the bladder, and his symptoms disappeared.

It is a curious fact, that two such opposite effects should be produced by the same cause. We occasionally meet with patients, whose urine passes off involuntarily, and others, who have a great difficulty in voiding it at all; in either case, the removal of the stricture almost always proves a cure to those distressing symptoms.

CASE IX.

A gentleman, about forty years of age, applied to me in the year 1803, for the relief of symptoms, which had continued on him upwards of two years, at which period he contracted a clap. The discharge had never completely left him, and was always increased by exercise, or irregular living. He had a very

frequent inclination to make water, but could not pass it without considerable exertion; occasionally he voided a thick mucus mixed with it; and he observed that the semen did not come forward with freedom, if he repeated the act more than once during the night.

August 15th, I applied the caustic to a stricture at seven inches, which gave way to three applications, after which all his symptoms disappeared.

CASE X.

A gentleman, about fifty-five years of age, applied to me in 1803, in consequence of strictures in the urethra. The principal symptoms were great uneasiness in voiding his urine, which sometimes passed in a fine stream, sometimes in a forked manner, and the last drops could never be expelled with sufficient force to prevent them from dribbling down, and making him very uncomfortable.

The following strictures were met with, and the caustic applied to them in succession, viz. first at three inches; second at five; third at five and a half; fourth at six; fifth at six and a half; and the last at full seven inches. The

whole were destroyed by twenty-four applications, after which he was able to make water in a full stream, without pain or the smallest difficulty. He had long been subject to severe affections of the stomach and head, which were always attributed to the effects of bile; these attacks generally came on about once in eight or ten days; but after the removal of the strictures, he passed more than three months without any attack of the kind.

CASE XI.

In conversation with a gentleman relative to venereal complaints, he mentioned to me that he was extremely uneasy on account of a discharge from the urethra, which had continued on him from the time of his having contracted a gonorrhœa in August, 1802.

For the removal of the clap he used injections nearly one month; at the expiration of that time the infection was considered as removed, and what remained was treated as a gleet, with bals. copaiva, &c. &c.

From this account I did not hesitate to tell him, that the continuance of the discharge must be in consequence of a stricture; and

upon making a more minute enquiry into the case, I found that he was subject to painful erections and involuntary emissions during sleep; and on passing a bougie, April 10, 1803, it met with a stricture at six inches from the external orifice. I now proposed the use of the caustic, which he readily consented to. Four applications allowed the bougie to pass on to seven inches, but it required seventeen more before it could be passed into the bladder.

The discharge now completely subsided, as well as his other unpleasant symptoms; and he has since informed me, that between the period of his contracting a clap and the time of his first speaking to me on the subject, he had a discharge of a thick glazy mucus from his bladder, which came away mixed with the urine, but when suffered to remain any time in a vessel, separated, and adhered to the sides of it.

This happened twice; the first time continuing on him near a month, the second only a few days; but each attack left him suddenly; and, as he did not consider this circumstance as connected with the complaint in the urethra, he had purposely omitted taking any notice of it to me before.

Several months after he contracted a clap, of which he was cured; but no return of contraction occurred, as a bougie of the same size passed with ease.

He has since had two or three returns of the discharge from his bladder, but they always subsided without any inconvenience to him.

CASE XII.

A Portuguese, seventy-five years of age, had been afflicted with the following symptoms of stricture for near thirty years, viz. difficulty and pain in making water, a very frequent inclination to void it, occasional suppression, and his urine generally mixed with a considerable quantity of thick glazy mucus; upon examining the canal by a full sized bougie, in October, 1803, I met with a stricture at five inches, which gave way to one application of the armed bougie; a second, at six inches, yielded to four; and the last, at full seven inches, to six more. A flexible gum catheter, or curved bougie, could then be passed into the bladder; his symptoms subsided, and the inclination to make water was seldom oftener than six or seven times in the twenty-four

hours. He had been in the constant use of the bougie for some years, without experiencing any thing more than temporary relief when the suppressions came on.

CASE XIII.

A priest, seventy years of age, had strictures in the urethra, with the following symptoms, which he had noticed for about sixteen years, viz. pain and difficulty in making water, a very frequent inclination to do it, discharge from the urethra, and considerable feverishness. In November, 1803, he applied to me; a stricture was met with at six inches, to which the caustic was applied. Ten applications destroyed three strictures in succession, viz. at six, six and a half, and seven inches. The pain and difficulty in making water were relieved, but the discharge did not subside altogether; it, however, became less; and, from the length of time that the bladder had been accustomed to evacuate its contents at short intervals, it had become so contracted, as to be unable to retain much urine, on which account the frequency of passing his urine still continued; his general health, however, was improved.

This patient had long passed small bougies, but never found any benefit from their use.

CASE XIV.

A labouring man contracted a gonorrhœa in June, 1803, for the removal of which several kinds of injections had been employed.

The discharge, however, had never left him; a slight pain in making water also continued; but for two months before his complaint was discovered to be a stricture, the inclination to make water became distressingly frequent. The person, under whose care he had been before he spoke to me, considered his case to be a stone in the bladder.

On the 31st of January, 1804, I applied the caustic bougie to a stricture at full seven inches, and after repeating the operation six times, was able to pass a full sized bougie with ease into the bladder. All his symptoms subsided in ten or twelve days after.

CASE XV.

A. B. a young man of an excessively irritable habit, had long been suffering under the most painful symptoms of stricture.

His complaint originated in gonorrhœa; but although the medicines employed had been mild, the irritability of his constitution did not admit the usual mode of treatment. After the infection had been considered as removed, his complaint was looked upon to be either stone, or a diseased bladder.

The warm bath, a variety of internal medicines and external applications were ordered by the several medical men to whom he had applied; but the symptoms appeared to be rather aggravated than relieved.

In March, 1804, he put himself under my care, at which time he had a slight discharge from the urethra, a frequent inclination to make water, which passed only in drops, and was accompanied with violent pain, principally at the glans.

On examining the state of the canal by a bougie, I met with a stricture at six inches, but such was the irritable state of his habit, that he fainted on the introduction of the unarmed bougie.

On the 23d of March I applied the caustic, which did not give so much pain as I had expected, nor did it produce fainting; five days after, on passing the white bougie, I found

that this stricture was destroyed, and a second was met with at seven inches, which only required four applications before the bougie could be passed into the bladder. After the first day he did not complain of much pain when the bougies were introduced, and, from the time the first stricture was destroyed, he was able to retain his urine for near four hours, without the smallest inconvenience, and when he voided it, it came away in a tolerably good stream, and without pain.

The discharge subsided after the bougie had been passed into the bladder, and in the course of two or three weeks, all his symptoms had completely left him.

No internal medicines were employed from the time the caustic was adopted.

CASE XVI.

An elderly gentleman had, for several years, experienced a diminution in the stream of urine, pain in voiding it, and occasional discharge from the urethra, which was always brought on by a connection, or exercise. The different practitioners, to whom he had applied, treated his complaint partly as arising from

weakness, and partly as a diseased state of the prostate gland. In April, 1804, he stated his case to me, and, on passing a bougie, a stricture was met with at four inches from the external orifice. The caustic was applied to this three times; on the twelfth, both bougies passed to about six and a half inches, and, on the twentieth the white bougie went into the bladder.

The symptoms, which before had occasioned him considerable uneasiness, all subsided in about three weeks.

Towards the end of the year he died of apoplexy. I lamented much that I could not obtain an opportunity of examining the parts after death.

CASE XVII.

In May, 1804, a gentleman, about twenty-one years of age, contracted a clap, which was treated in the usual manner; but the discharge continuing for a long time, led to the opinion that he must have an obstruction in the canal; and, on making more minute enquiry, I found that, about twelve months before this period, he had also been infected by a

gonorrhœa, and that the discharge at this time was long in leaving him. The introduction of a bougie confirmed the fact, and the caustic was applied to two strictures, viz. one at six and the other at seven inches. Three applications allowed the unarmed bougie to be passed into the bladder; but finding that the discharge did not subside altogether, I passed a white bougie of a full size larger, which met with a slight resistance at seven inches, but still was able to be passed into the bladder; however, on withdrawing it, I found that it had been grasped by the stricture at that point, which was very evident from the impression made upon the end of the bougie, at its upper surface; as if it had been done with a piece of thread. With this information, I passed a bougie, armed only on the upper edge, down to the stricture, which was brought into a state of contraction by the white bougie passing through it, and, after twice repeating the application in this manner, the stricture was completely destroyed, and all his symptoms disappeared.

CASE XVIII.

A gentleman's servant applied to me for the removal of a discharge from the urethra, which had been on him for two or three years, not always equally violent; more so when he committed any excess, or used much exercise; he had also a frequent inclination to make water, subject to the like variation. I applied the caustic to a stricture at six and a half inches on the 21st of July, 1804; 23d, repeated it; 25th, bougie passed into the bladder; his discharge left him, and he had not occasion to void his urine oftener than natural.

CASE XIX.

In July, 1804, A. B. applied to me for heat of urine and difficulty in voiding it; to this he had been subject for several months; there was a considerable thickening of the urethra at four and a half inches, which was easily distinguished externally by the finger; he had also a small sinus at the under part of the perinæum, which had become quite fistulous, and discharged a thin sanious fluid, but did

not communicate with either the urethra or rectum.

The first stricture met with, was at four and a half inches, which gave way after two applications of the caustic; on the 2d of August, the caustic bougie was passed to a second at six and a quarter inches; six operations destroyed this, and seven the last, which was at full seven inches.

Although I laid open the sinus on his first applying to me, it did not shew the least disposition to heal, until the strictures had been destroyed, after which it healed in ten days; so that it appeared probable that the irritation of the strictures had been the cause of it. The swelling at four and a half inches also disappeared, as well as the heat and difficulty in making water.

CASE XX.

In July, 1803, a young man consulted me in consequence of general pains about his limbs, which had been exceedingly troublesome to him for several months; and, from his having had a venereal complaint about two years before, he was naturally led to consider

them as arising from that cause. He informed me that his hips and loins were the parts most severely affected, and that he had occasionally felt much heat and some difficulty in voiding his urine, at which times the pains were generally very distressing, often extending down the thighs. This naturally led me to enquire more particularly as to the state of the urethra, and I found that he had, at two different periods, used injections for the cure of claps, and that, since the last time, he first experienced the pains, which had gradually increased with the heat and difficulty in discharging his urine.

On the 27th of July, I examined the urethra by a bougie, which met with a stricture at six inches; and, after giving him my reasons for supposing that those symptoms arose from this complaint, I proposed to him the treatment of his strictures by caustic, without using any internal medicines, to which he readily agreed.

After five applications of the armed bougie, the heat of urine subsided, and, with it, all the other symptoms; but, as his line of life was connected with the sea, he was obliged to decline any further use of the caustic at this period.

Some patients have either such a dread of the caustic, or impatience for its effects, as almost to determine them rather to suffer the pain and inconvenience arising out of the complaint, than to persevere for a sufficient time in the necessary treatment for its removal; supposing, perhaps, that, if by a few applications they do not obtain relief, their case must necessarily be so far advanced as not to admit of a cure.

Others again there are, who cannot comprehend that a local complaint can produce symptoms in the constitution, at a distance from and apparently altogether unconnected with the urinary canal, and, consequently, cannot reconcile to themselves the possibility of a cure being effected without the aid of powerful internal medicines.

I have met with several persons of this description, many of whom have returned a second time to the treatment, after having discovered their error; of which the following is a strong instance.

CASE XXI.

A. B. about thirty-five years of age, applied to me in consequence of the following

symptoms; a discharge from the urethra, with pain and frequent inclination to make water—This he informed me had given him great uneasiness, as it appeared without any apparent cause, and was gradually increasing on him, although he was particularly careful not to commit any excess in living.

August, 1804, on examining the urethra by a bougie, I met with a stricture at five and a half inches, which I assured him was a sufficient explanation of his symptoms, and pointed out to him, that the only mode of obtaining relief was to destroy the obstructions, as many as should be met with, by caustic; to this with some difficulty he consented; and, after four applications, the bougies passed down to full seven inches; but, as the symptoms did not appear to be relieved, he began to grow extremely impatient, and wished me to try the powers of internal medicines. Being satisfied that nothing was to be gained without a continuance of our present plan, until the bougie could be passed into the bladder, I endeavoured to prevail on him to consent to a further trial, which he positively declined; and, as he found me equally decided in my opinion, he left me in September, and placed himself under the

care of some other practitioner, who gave him medicines internally, and recommended sea-bathing, considering the discharge as a gleet, and arising altogether from weakness.

This plan was continued, with some little variation, under the direction of two or three different people, until March, 1805, when, finding himself in the same situation, he returned and put himself again under my care, with a determination to submit to every thing I should propose.

On the 19th of March, the caustic bougie was applied to the stricture at seven inches, and on the 14th of May, after ten applications the white bougie readily passed into the bladder.

As he lived in the country, he could only attend, as circumstances would permit, once in eight or ten days.

June 8th, I passed the same bougie into the bladder, and he candidly acknowledged the truth of what I had before told him, as all his symptoms had entirely left him.

CASE XXII.

In August, 1804, a man of weak nerves consulted me for the following symptoms, which had made him extremely uneasy for

two or three years. He had an occasional discharge from the urethra, which had continued more or less troublesome from the time of his having been under treatment for a clap, about three years before this period; when he was perfectly quiet, the discharge scarcely stained his linen, but, if he used exercise, it was considerably increased. He had a very frequent inclination to make water, some heat in passing it, and also pains along the thighs: from this history of his case, I told him that the local symptoms of his urethra must be the consequence of a stricture, which could be infallibly ascertained by the introduction of a bougie. To this he was much averse, but with some difficulty, consented. The bougie met with an obstruction at five inches, which put that part of his case beyond a doubt.

I then told him that I considered the pains in his thighs altogether as symptomatic, and proposed the treatment of his strictures by caustic as the only means by which local symptoms could be relieved; and that after this, should the pains still continue, other steps might be taken for their removal.

He felt so much pain in the first introduction

of the bougie, that he could by no means reconcile himself to the trial. Reasoning with him was in vain, as he was determined to await the event, and suffer the inconvenience of his complaint, rather than risk his life, *as he expressed it*, by the treatment.

In July, 1805, finding his complaint increase upon him, and meeting with some of his acquaintances, who had experienced much benefit from the treatment under similar circumstances, he acquired resolution enough to put himself entirely under my care; and, on the 5th, I applied the caustic bougie to five inches.

The pain he felt was considerable, but much less than he had expected; on the 13th the bougies both passed to five and a half inches; he had two other obstructions, the one at six, and the other at six and a half inches; the whole were removed by eleven applications, and, on the 31st of August, a large flexible green catheter was passed into the bladder. September 20th, the catheter again passed; and all his symptoms had disappeared.

There is a state of irritation, to which the urethra is often liable, after the removal of strictures, which produces an increased secretion of that mucous, which is intended by

nature as a defence against the acrimony of the urine; this increased secretion resembles that kind of discharge which is commonly termed a gleet, but is generally unattended with pain in passing urine, or any particular uneasiness about the bladder.

This state of irritation frequently keeps up the appearance of discharge for some time after the removal of strictures, and is liable to be brought on, at any period after their removal, by any of the causes which were previously observed to have increased the discharge during their existence. If however the secretion is very considerable, it sometimes puts on the appearance of a gonorrhœa, producing pain in voiding urine, and sometimes a frequent inclination to pass it.

Upon many occasions, this irritation may be removed by injecting a little tepid sea water, and attending to the state of the bowels.

CASE XXIII.

In August, 1804, a gentleman's servant put himself under my care, for the removal of a discharge and heat of urine, which he considered to be a clap. The circumstances of his case altogether led me to suspect that his

symptoms depended upon another cause; and, upon examining the urethra, I found that it was naturally very large, but had contracted at the point. August 10th I applied the caustic to enlarge the external orifice, and, after six applications, an armed bougie was passed to four and a half inches. Two applications to this, and five to one at seven inches, allowed the white bougie to be passed into the bladder; his symptoms however continuing very obstinate, and, finding the orifice still a little contracted, I applied the caustic to it twice more, which enabled me to pass a very large armed bougie down to seven inches; three more applications to this part allowed the largest size bougie in use to go into the bladder.

This I continued to pass every second day for a fortnight, and then recommend his leaving the parts alone to recover themselves. In about three weeks, the discharge still continuing, he again called upon me, to ask my permission to inject sea water, and, as I saw no objection to it, I acquiesced in his request, but desired that it might be tepid. After using this application for about ten days, the discharge completely ceased.

CASE XXIV.

A young Portuguese contracted a venereal gonorrhœa while in England, where he had been sent to serve an apprenticeship.

Of this he was cured by injection, but, from that period, always experienced a diminution in the stream of urine, and generally sufficient oozing from the urethra to stain his linen. Bals. copaiva, bark, and a variety of medicines had been given at different times, but he still found no difference: he was also subject to considerable spasm in the canal. In this state he put himself under my care in August, 1804, nearly three years from the time of his having first perceived the clap.

I applied the caustic to a stricture at one inch from the external orifice once, to five inches once, to five and a half inches once, and to six inches three times, after which the unarmed bougie readily went into the bladder, and all his symptoms ceased.

In July, 1805, he called upon me, much alarmed, from perceiving a discharge which came on a few hours after coition.

From the sudden appearance of it, he naturally concluded it to be an extremely virulent

infection. After making minute enquiry into the circumstances, I found that connection had been brought about with considerable difficulty, and that this urethra had been in a state of almost continued irritation for some hours previous to it. This I told him was sufficient to bring on his present symptoms, and desired him to inject a little tepid sea water every two or three hours; attention was also paid to keep his bowels open, and, in five or six days, the discharge subsided.

I now passed a bougie to ascertain the state of the canal; it went with ease into the bladder, and he felt no further inconvenience whatever.

CASE XXV.

A. B. applied to me for the following symptoms of strictures, viz. a discharge, pain with difficulty in voiding his urine, and a very frequent inclination to pass it. The caustic was applied to the first stricture at three and a half inches in August, 1804, which was destroyed by three applications; thirty more removed the following, viz. at six, six and a half, and seven inches. After which, a bougie was passed into the bladder, and all his symptoms disappeared.

CASE XXVI.

In August, 1804, a gentleman consulted me for symptoms, which he considered to arise from gonorrhœa, having had a suspicious connection, which, as I afterwards learnt, had been attended with peculiar circumstances; the discharge came on very violently a few hours after, and the irritation on the bladder was considerable. After having used laxative medicines, and a very mild injection for some time, the discharge nearly left him, but was always increased by the least exertion.

This circumstance was sufficient to confirm me in the opinion of its depending altogether on strictures. His urethra being naturally very large, the stream of urine had not experienced any diminution that he was sensible of, and it was difficult to make him comprehend the possibility of strictures being able to produce such effects, without a very sensible alteration in it, nor would he consent that I should examine the state of his urethra, by passing a bougie, until he had seen several of the cases in Mr. Home's publication, which I requested him to read. The examination by a bougie discovered

a stricture at five and a half inches from the external orifice.

He now recollects several circumstances, which had hitherto escaped his attention. He told me that, several years before, he had perceived a discharge, which continued for two or three days, and then disappeared: this he was, at that time, unable to account for; but, as it produced no other inconvenience, he thought no more of it. His urine also, since the discharge appeared, occasionally contained a considerable quantity of mucus, which separated, and adhered to the bottom of the vessel.

The use of the caustic was now, September 29, determined on; two applications destroyed the first stricture; and two to the last, which was at six and a half inches, allowed the white bougié to be passed into the bladder; it required two more applications before the symptoms disappeared.

In April, 1805, five months after the strictures had been destroyed, I passed a full sized bougie, with perfect ease, into the bladder, and he remained perfectly free from the complaint.

In August following, a violent spasm came upon the neck of the bladder and urethra,

immediately after coition, so that he could not void any urine for some time, and, in a few hours, a discharge appeared similar, in every respect, to the former. He informed me that he had been in an almost continual state of irritation for several hours previous to the connection, owing to a variety of circumstances, and that, immediately on the discharge of the semen, he felt a sudden acute pain near the neck of the bladder; during the same night, and before the discharge appeared, he had connection in a regular manner, in which every thing appeared to him natural.

The discharge was violent, the heat of urine considerable, and the irritation on the neck of the bladder was such as to produce a very frequent desire to void it; for some time his urine was loaded with mucus, which, when separated and evaporated in the sun, left a greyish coloured powder.

As soon as the state of the urethra would permit, a bougie was passed, to ascertain whether the stricture had in any degree returned; it was a full size larger than what had formerly been used, and went readily into the bladder; laxative medicines were given, and the bougie occasionally passed, which always

took off the spasm. The discharge, however, continuing, he was directed to inject tepid sea-water, but his state of mind and other circumstances at that time, did not admit of his paying that attention to himself which his situation required. He embarked shortly after this for England; and, in the month of September, he wrote me word that the discharge continued diminishing during the voyage: it, however, returned on his landing, in consequence of his using much exercise, and the weather being extremely hot; but that, after being perfectly quiet for a few days, it left him altogether.

CASE XXVII.

A lad, about seventeen years of age, had a discharge from the urethra and heat of urine, which continued on him some weeks after he had been under the treatment for a gonorrhœa. On the 31st of October, 1804, I passed a bougie; it was stopped at seven inches, to which point the caustic was applied five times; the bougie then passed into the bladder, and the discharge, &c. left him.

CASE XXVIII.

In October, 1804, a countryman applied to me, in consequence of a discharge and frequent inclination to make water; whenever the desire came on, it was so sudden that he could scarcely retain it at all. His complaint had been treated as weakness, the consequence of gonorrhœa.

After this history of his situation, I examined the canal by a bougie, which passed down to seven inches, where it was arrested; the caustic was applied to this point, and after repeating it fifteen times, the bougie could readily be passed into the bladder, and all his symptoms left him.

CASE XXIX.

A. B. servant in a respectable family, had long been uneasy on account of a discharge, and some slight heat of urine, which had been treated as a gleet; but not getting better, the surgeon of the family, under whose care he had been, desired that I might be consulted. At this time, October, 1804, the discharge was

very considerable during the day, but less through the night; and, on some days when he was more quiet, it very much abated; he had rather more frequent desire to make water than natural, but without pain.

I passed a bougie, and met with a stricture at six inches, to which the caustic was applied four times, once to six and a half, and four times also to seven inches; after which the bougie went into the bladder, and all his symptoms were removed.

CASE XXX.

A young gentleman, about twenty years of age, put himself under my care, in consequence of the following symptoms; an itching round the glans, at the back part, with some excoriation, and an inability to discharge the last drops of urine, which generally came away on his linen. The itching and excoriation were not constant, but most troublesome during the hot weather. In November, 1804, I passed a bougie, and met with an obstruction at six inches, to which the caustic was applied four times; the bougie then went into the bladder, and he no longer had any difficulty

in expelling the last drops. The excoriation returned occasionally, but was now always removed by a little warm milk and water, or saturnine wash.

CASE XXXI.

While treating a gentleman for lues, he mentioned to me, that, about two years before, he had a clap, and, since that period, he was subject to occasional discharges from the urethra, which sometimes continued for ten days or a fortnight, and was always the consequence of any excess, or unusual exercise: he had a slight return of the discharge at this time, which was the reason of his mentioning the subject. There appeared to me no doubt as to the immediate cause of this discharge, and, I requested that he would allow me to pass a bougie. The discovery of a stricture at six and a quarter inches, was the consequence of this examination, and the caustic was applied to it on the 20th of December, 1804. Six applications destroyed that, and a second at seven inches, after which the bougie went into the bladder. It is now more than twelve months since, and he has not had any return of the discharge.

CASE XXXII.

A. B., about sixty-seven years of age, had a discharge with slight heat of urine, and pain about the neck of the bladder. In September, 1805, he applied to me, after having taken medicines and used various injections for upwards of three months, without finding any benefit from them.

I found the external orifice much contracted, and, therefore, enlarged it by caustic; after which, the caustic was applied to a stricture at six inches; eight applications removed three obstructions, and a bougie could readily be passed into the bladder; all his symptoms left him.

CHAPTER VIII.

CASES OF STRICTURES IN THE OESOPHAGUS.

STRICTURES in the oesophagus are far from being so common as in the urethra, for two very obvious reasons, the size of the canal, and the use for which it is intended. However they are more common than has been generally believed.

It is but very lately, however, that an attempt has been made to relieve this complaint by the application of caustic.

Mr. Home has given some cases of it in his treatise on strictures, and the following cases have come under my care.

CASE I.

I. A. a Portuguese, gave the following history of his complaint. It first appeared in July, 1803, with a considerable hoarseness, after having taken much exercise, and exposed himself suddenly to the cold; the hoarseness continued for several days more or less trouble-

some. In October it increased so much, that he was with difficulty understood, accompanied with a dry and painful cough: from this period to February 1804, the cough increased, the expectoration became considerable, and, occasionally his respiration was very difficult.

On the 24th of February, he experienced great difficulty in swallowing, and on the 15th could not swallow either solids or fluids. In this way he continued for eight days, receiving support from glysters. His medical attendant ordered an application of mercurial ointment and camphor, night and morning.

In the course of eight days, the spasm was so far removed as to enable him to swallow liquids in very small quantities; but in order to effect this, he was obliged to place his body in an almost horizontal posture, with his head rather elevated.

It was more than six weeks before he could get down any thing that was solid, and this so trifling in quantity, and with so much caution as to his position, that it could not be depended upon as nourishment.

His cough continued increasing, the expectoration was considerable, evidently purulent, and often mixed with blood.

In May, 1804, I first saw him; he was in a very weak state, and much reduced. He could only swallow liquids, and those when in an almost horizontal posture.

At this time I considered his state of health so precarious, that I did not venture to suggest any mode of relieving the throat, but attended wholly to his constitutional symptoms. Various medicines were ordered, and, as in a few weeks he gained sufficient strength to be able to walk about the house, the complaint in his throat became an object of attention. I passed a bougie, previously curved, and found it met with a resistance in the oesophagus.

A bougie, armed with caustic, was passed on the following day, and, after eight applications at different intervals, he was enabled to swallow, either fluids or solids, in a perfectly erect posture. In two weeks after this, he caught cold, and the difficult deglutition again returned, though less violently than on the former occasion. Two applications of the caustic brought every thing right again, and he felt no further impediment to his swallowing till the day of his death, which was suddenly on the 1st of September.

The following were the appearances which I had an opportunity of examining after death. The œsophagus, when laid open from behind, shewed the situation of the stricture, a small portion of which still remained; the projection of it appeared like a little shelf; all the other part of the canal was perfectly natural; the lungs were full of tubercles, some of which had suppurated.

The annexed plate will give a better idea of the stricture, &c. than can be conveyed by words.

CASE II.

A young lady, about 17 years of age, accidentally had a cherry-stone stick in her throat for a considerable time; it was at last brought up by the act of vomiting.

This happened about the year 1787, from which period she was liable to repeated spasmodic affections at that part of the œsophagus, during the act of swallowing; a very small piece of bread touching this part, was frequently sufficient to bring it on, so that the food could neither be swallowed or brought up for several seconds.

Within the last few years, it had become very distressing, often occurring two or three times during a meal.

In 1804, I first ascertained that these symptoms were produced by a stricture in the oesophagus, as a bougie of a small size could not be passed into the stomach; I therefore applied a caustic bougie previously curved to it, four or five different times, at the intervals of two or three days; the swallowing was evidently much improved by it, but after one application the throat inflamed and swelled, accompanied with very considerable pain, which extended to the eustachian tube of the left side; the external ear was also much affected; it became necessary to apply a blister to relieve these symptoms, and as she was then advanced in pregnancy, I thought it prudent to decline any further continuance of the treatment at that period: since which she has always been in a very delicate state of health, in consequence of a pulmonic affection, so that the treatment could never be continued regularly for a sufficient time, to be productive of any permanent advantage; but whenever the throat was most troublesome, and her other com-

plaints would admit of the application of caustic, it always afforded relief.

Her pulmonic complaints at length getting the better of her constitution, I was anxious to examine the parts after death, and was much satisfied with their appearances, as I thought they afforded considerable information relative to the complaint and its treatment. What appeared of most consequence to notice, was the situation of the stricture, which was immediately behind the cricoid cartilage, at which part those that have been examined by Mr. Home, and also the one represented in plate No. 1. were formed.

The œsophagus had no appearance of diseased stricture in any other part, but was narrower in its whole length than it is usually found to be, most probably owing to the great length of time that the stricture had been formed. The membrane immediately above the stricture was not at all injured by the application of the caustic. The aperture of the stricture was not larger than would admit of a crow's quill being passed through it, and the stricture, after the œsophagus had been slit open from behind, appeared to project from the inner membrane equally all round.—See Plate No. II.

CASE III.

A poor woman, about fifty years of age, applied to me in April, 1805. Since August, 1804, she had experienced great difficulty in swallowing any thing, either fluid or solid, and, within the last ten weeks, could get nothing into the stomach but what was perfectly fluid; any attempt to swallow solids produced vomiting.

On the 18th of April, I applied the caustic, and repeated it on the 19th and 20th. On the 21st, I passed an unarmed bougie into the stomach; on the 22d, 23d, and 25th, I passed a probang with great ease, and, as she swallowed tolerably well, I allowed her to return to her friends in the country.

In May following she came back to me, as she again found great difficulty in swallowing, the act often producing vomiting; on the 11th I applied the caustic, and repeated it on the 12th and 15th, after which she went into the country perfectly relieved.

THE END.

Reference to the Plate, No. I.

THE œsophagus is slit open from behind, shewing the remaining part of the stricture.

- a, a.* The two extremities of the os hyoides.
- b.* The epiglottis.
- c.* The remaining part of the stricture.
- d.* One of the rings of the trachea.

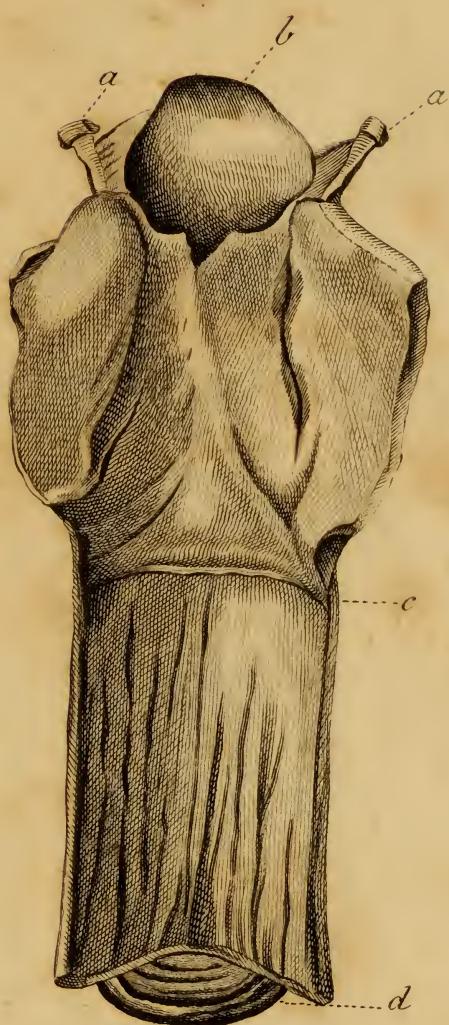
Explanation of Plate, No. II.

This plate conveys a more perfect idea of the complaint, as more parts are exposed, and their relative situations carefully preserved.

- a.* A portion of the posterior part of the tongue.
- b.* The epiglottis.
- c.* The glottis.
- d, d.* The tonsils, the right is most exposed.
- e, e.* } { The cut edges of the œsophagus laid open to expose the parts to view.
- f.* The stricture, a small piece of bougie, the exact size of the aperture, is passed through it.
- g, g.* Portions of the thyroid gland.
- h, h, h.* The trachea, with one of the cartilaginous rings exposed.



Plate 1



• H. W. Andrews, Del't

J. Whitaker, Scn

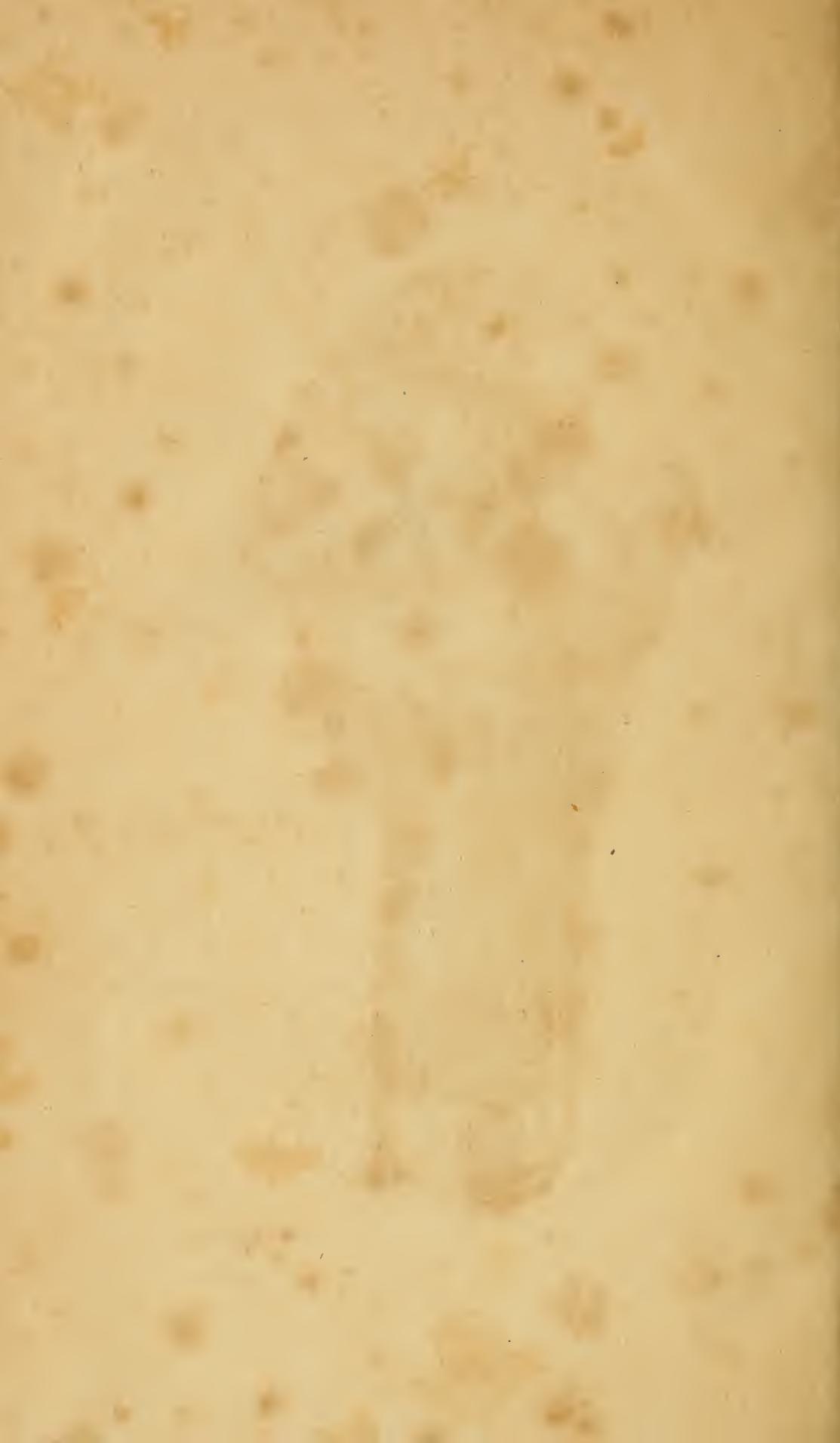
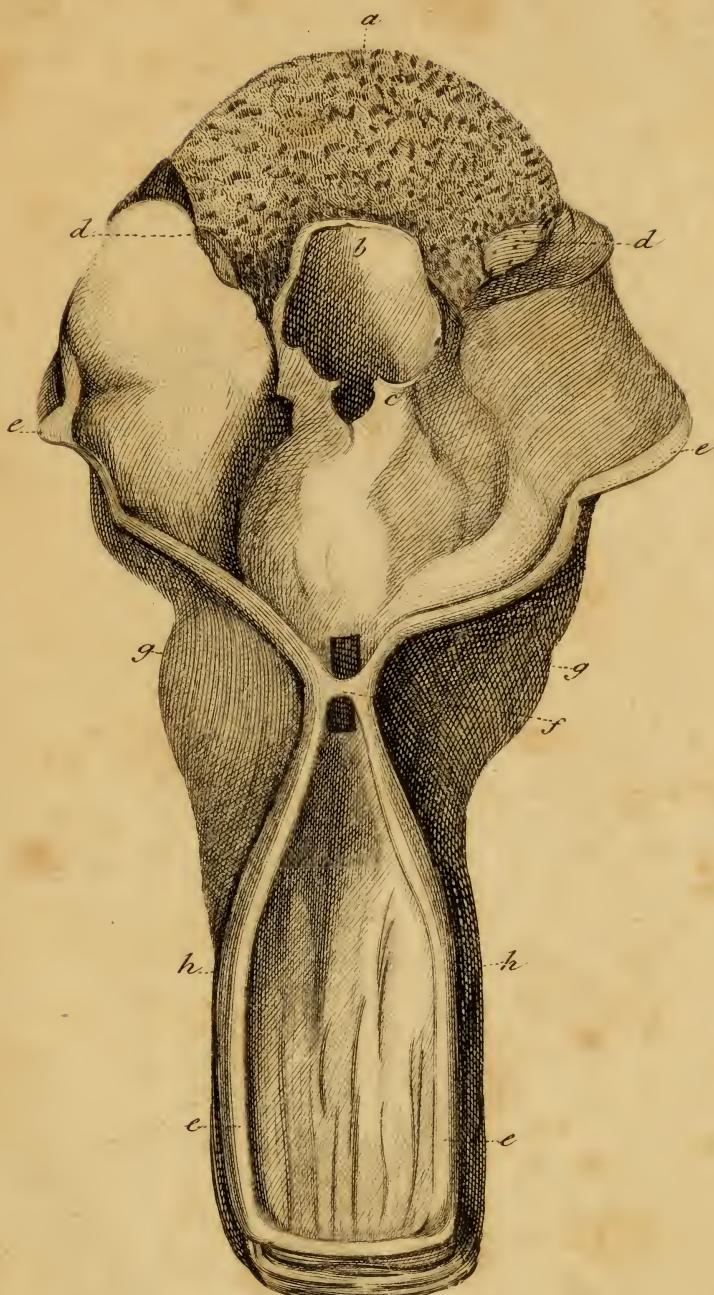


Plate 2



M.W. Andrews Del.

h

S. Whitaker Sculp.

